



Glass House
The jewel of Lalbagh





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The jewel of Lalbagh

**Mysore Horticultural Society,
Lalbagh, Bangalore - 560 004, INDIA
1991**

GLASS HOUSE - THE JEWEL OF LALBAGH

The Lalbagh Glass House Centenary Souvenir, Published by the Secretary, Mysore Horticultural Society, Lalbagh, Bangalore - 560 004, INDIA.

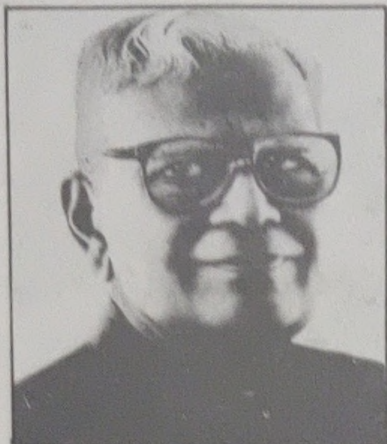
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राष्ट्रपति
भारत गणतंत्र
PRESIDENT
REPUBLIC OF INDIA

M E S S A G E

In the necklace of Bangalore's parks, Lalbagh is the pendant. And set at the heart of this pendant is a diamond in the form of the Glass House.

I was glad to have participated in the centenary celebrations of the Glass House in December 1989 and am happy to learn that a Souvenir is being brought out to mark the event.

Designed, originally, on the lines of the Crystal Palace in England, it was built with the specific objective of providing a sequestered locale for flower shows. But, over time, its scope has widened. The Glass House is now a national venue for conducting various meetings and public functions.

Today, Lalbagh and the Glass House have come to symbolise the development of horticulture, reminding us of the significant contributions made by the great Horticulturists of our country.

The poet Keats said :

"A thing of beauty is a joy for ever"

Let the Glass House bring eternal joy to the people and may the Glass House celebrate not one but many centennial years in perpetuity.

R. Venkataraman

R. VENKATARAMAN

New Delhi,
May 28, 1991.

GOVERNOR,
KARNATAKA.



RAJ BHAVAN
BANGALORE
27th May, 1991

MESSAGE

The 'Glass House' in Lalbagh was initially built to conserve plants and arrange flower shows, which were regular features then. John Cameron, the then Superintendent of Lalbagh, mooted the idea of building a glass house in the year 1889. Its construction was completed during 1890. Since then, the flower shows are regularly held in the Glass House.

The Glass House is the crowning structure of the Lalbagh, originally called as 'Albert Victor Conservatory', for years exotic plants were conserved in this conservatory. Since its construction, the Glass House has become a centre of horticultural activities. It has contributed a lot for the development of horticulture in the state.

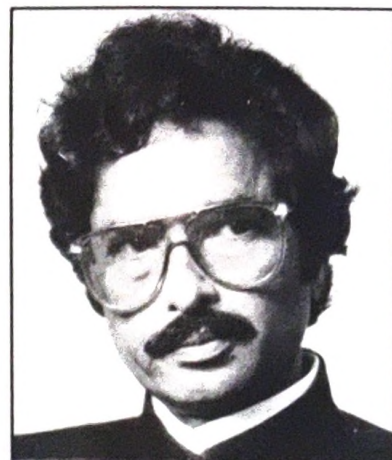
Karnataka has made considerable progress in the horticultural sector and is a pioneer in adopting drip irrigation system for horticultural crops.

I hope the souvenir will highlight the developments in horticultural field in Karnataka in general and the importance of Lalbagh including the Glass House in particular.

A handwritten signature in dark ink, appearing to read "Khurshed Alam Khan".

(KHURSHED ALAM KHAN)

CHIEF MINISTER
KARNATAKA



Vidhana Soudha,
Bangalore.

MESSAGE

The 'Glass House', the only one of its kind in the entire country, resembles the famous Crystal Palace of England. This beautiful structure has nurtured the horticultural development in the state.

Karnataka is a path finder in integrating horticulture development in all its branches on modern lines. The state has tremendous potential for the development of horticulture. In the ten agroclimatic zones of the state, a wide range of horticultural crops are grown. Greater emphasis is being laid on transfer of modern horticultural technology including dryland farming for higher and sustained production.

The Glass House and the famous Lalbagh have been synonymous with the horticultural development in the state.

I am happy to know that many useful programmes are being organised as part of the Centenary Celebrations of the Glass House.

The Souvenir, I am sure, will enlighten many facets of the memorable Glass House and Lalbagh.


(S. BANGARAPPA) 15/6/91

MINISTER

For Agriculture and Horticulture



Vidhana Soudha,
Bangalore.

MESSAGE

I am happy to know that a souvenir is brought out as a part of the Centenary Celebrations of the Glass House. The Glass House has made significant contribution for the development of horticulture in Karnataka.

Karnataka is the first state to start an independent Department of Horticulture in the country. The Department is following an integrated approach for the around development of horticultural activities. It accounts for about 11.55 lakh hectares under all horticultural crops, out of a total cultivable area of 105 lakh hectares. Massive programmes of assisting small and marginal farmers, schedule caste and schedule tribe cultivators are under implementation. Organised marketing of horticultural products is also undertaken in the state. Popularisation of improved varieties of fruits, flowers and vegetables is being encouraged. Commercial crops are raised on priority basis. Karnataka is a model state in respect of horticultural development in the country. The Lalbagh and Glass House have played important role in this behalf. Dr. M.H. Mari Gowda, former Director of Horticulture, through his dedication and approach, was able to project Karnataka's image in the forefront on horticulture map of India. It is gratifying to note that the other states in India are following the model of Karnataka in organising the horticulture development.

My best wishes for the success of the praiseworthy effort.


MINISTER FOR AGRICULTURE &
HORTICULTURE,

FOREWORD

The worth of any material or structure is reflected in its intrinsic qualities and utility to the man and society; and it is, therefore, natural that only the worthwhile materials and structures are loved and possessed and the rest, either disappear or discarded. To such former category belongs the renowned and the magnificent Glass House at Lalbagh. It is a time tested structure and an object loved and 'owned' by the people of the state and the nation. It is variously nick-named as the 'Heart of Lalbagh', the 'Jewel of Lalbagh', the 'Crystal Palace of India', the 'Sanctum Sanctorum of Horticulture', and so on; and all this shows that how important is the Glass House to all of us!

For over a century, this elegant structure is standing as a symbol and testimony of horticultural growth in the state, as well as the country. The glory of the Glass House is further enhanced, because it is anchored nowhere else, but at the centre of the world famous Lalbagh Botanical Gardens! Over a century, the name and fame of Glass House has spread undoubtedly beyond the 'limits' perceived by Mr. John Cameron, during whose tenure it was built, in the year 1889-90. This celebrated structure has witnessed the onerous tasks performed by the past 'doyens' of horticulture namely: John Cameron, G.H.Krumbiegal, H.C. Javaraya, Dr. M.H. Marigowda and others; and might have felt proved of itself, for having had the company of such great workers who changed the pace of horticulture, not only in Karnataka, but also in India.

It was a great moment of joy and elation to the lovers of horticulture, when this historical and legendary structure celebrated its 100th anniversary on 16th December 1989, in an atmosphere of pomp and festivity, with the rich tributes paid by the President of India, in a glittering function held in the 'very structure', at Lalbagh, Bangalore.

As you agree, the events are remembered in various ways, and to capture such events the pictures and literature are a must. The souvenir that is brought out now would immortalise the glory and glorious events connected with glass house and its habitat, the Lalbagh Botanical Garden. I hope that the articles in this souvenir arouse a great deal of interest in the minds of readers and offer fabulous information on the history, plant wealth, happenings, and the way the horticulture has made a break through in the state. My heartfelt thanks are, therefore, due to all those who are responsible for making this souvenir a 'reality', and more specially to all the distinguished authors, who have done their job par excellence.

Finally, I wish that the long cherished legacy of Lalbagh and Glass House shall continue for ever, and bring further prosperity and happiness to the state and the country.

Bangalore,
17-6-1991

L. Hanumaiah,
Director of Horticulture,
Lalbagh, Bangalore-4.

PREFACE

This souvenir, entitled 'GLASS HOUSE - THE JEWEL OF LALBAGH' has been brought out to commemorate the centenary celebrations of the famous 'Glass House' at Lalbagh Botanical Gardens, Bangalore. The structure, erected in the year 1889-90, has all throughout been the symbol of horticultural growth and development in Karnataka, as well as India. By glancing in retrospect into its memorable one hundred years of history, one can witness the glittering chapters of plant-introduction, acclimatization and spread of a multitude of plant wealth, for the benefit of mankind. All along its centennial lustrous track, one can trace the epochs of delightful occasions and climacteric achievements, responsible for transforming gardening from the 'paragon of elites' to the 'profession of commons'. Behind this Herculean task, stands the spirit that emanates from 'sanctum sanctorum' of Lalbagh, which is nothing else, but the Glass House itself. It is, therefore, not just a structure, but an unique landmark of horticulture in the country!

So, it was natural to think of celebrating the centenary of this paramount structure in a most befitting manner and accordingly a high-level committee was set up under the chairmanship of Mr. K.S.N. Murthy, the then Chief Secretary to the Government of Karnataka, assisted by Mr. S. Krishnakumar, the then Secretary to Government, Agriculture and Horticulture Department and Mr. A.K.M. Nayak, the then Director of Horticulture. The committee drew up an elaborate 'action-plan' for conducting the centenary celebrations aptly and meaningfully, and to bring out an informative and colourful souvenir commemorating the event, was casted prominently in it. Consequently, an expensive renovation work of Glass House took place, which added charm to its dimensions. Following this, on 16th December 1989, the president of India, His Excellency, Mr. R. Venkataraman, inaugurated the 'Centenary Celebration' in a glittering function held at the Glass House proper. This function was attended by a galaxy of dignitaries from all over the country.

For bringing out the souvenir, a sub-committee was constituted under the chairmanship of Mr. M.L. Subbaraj, Vice-Chairman, Mysore Horticultural Society, Bangalore. But unfortunately, the souvenir work could not be finalised due to various reasons; and a ray of hope appeared when Mr. L. Hanumaiah, the Director of Horticulture, played a decisive role in getting this work done. Under his able guidance and constant encouragement, this souvenir work shotup and got completed in a record time, and the 'result' of which is now in the hands of readers in the form of an useful, colourful and attractive souvenir.

The articles compiled in this centenary souvenir are, by any measure, the laurels of literary work, written with due cognisance to historical facts and figures. They have appeared in the lucid and taintless style. They cover almost all the key topics related to the history of Lalbagh and Glass House, the artistic structures there in, their proud legacies, the memorable plant introductions, the legendary land marks, the astounding plant wealth, the antiquity and glory of flower shows, the significant role played by Lalbagh in promoting various horticultural activities, and a lot many other subjects. The articles reminding us of the bygone days of Lalbagh and revealing the philosophy of an inseparable bondage between man and plants, have added special charm to the souvenir! For all this, the distinguished authors of these articles deserve special thanks and appreciation.

I am quite confident that the readers find this souvenir a '**treasure house of knowledge**', worth possessing and worth-preserving as a reference book on the aspects of past, present and future of Lalbagh and the very heart of it, the 'Glass House'. Lastly, I wish that this marvellous souvenir shall find place in the libraries all over the country and the world, so that the future generation, by referring them, will be thrilled to know about the interesting and authentic facts on Lalbagh and Glass House, and the glorious events that happened therein!

Bangalore,
17-6-1991

Dr. S.V. Hittalmani
Honorary Editor

ACKNOWLEDGEMENT

If Lalbagh is the crown adorning the Indian horticultural scene, the 'Glass House' is considered as its crest jewel. To commemorate the centennial year of Glass House, we are happy to place this centenary souvenir in your hands.

The idea of celebrating this unique event was the brain child of Mr. K.S.N. Murthy, the then Chief Secretary to the Government of Karnataka. He inspired us to bring out a special souvenir befitting the occasion, and with him were Sri S. Krishna Kumar, the then Secretary of Agriculture and Horticulture and the then Director of Horticulture Mr. A.K.M. Nayak, who actively involved themselves in the project and evolved basic guidelines, following which we have been able to achieve success and place this nice souvenir in your hands. I take this opportunity to thank these three visionaries, who inspired us with this glorious dream, which has become a reality now.

In the middle of the voyage, the captancy was taken over by Mr. S.N. Shantha Kumar, the present Secretary, Agriculture and Horticulture and Mr. L. Hanumaiah, the present Director of Horticulture. They took this project with great enthusiasm and dedication. They provided us guidance and help to bring out the souvenir in a best possible manner. I thank them immensely, for their help and guidance rendered in this venture.

We are grateful to the Director, Department of Information and Publicity and Mr. A. Girish Rai, of the same Department, for their constant attention and advice, which helped us to make this souvenir elegant and impressive. We are thankful to Mr. E.R. Sethuram, former Editor of 'Sudha' and advisor to the Deccan Herald Group of Papers, for his editorial skill, which has given professional finesse to the souvenir.

Dr. S.V. Hittalmani, Joint Director (Horticulture), D.L.D.B. and S. Narayanaswamy, Assistant Horticultural Officer, Department of Horticulture, have supervised the printing of the souvenir from beginning to end and also have carefully compiled and edited the articles. Our thanks are due to both of them.

The Joint Directors of Horticulture of various units in Lalbagh, have joined the team and helped us by their suggestions and advice during the preparation of this souvenir. Our thanks are due to them.

I take this opportunity to thank B.Y. Gurumurthy, the Secretary, Mysore Horticultural Society, and also all the Members of the Council of the said Society, who displayed excellent team spirit and cooperation, which helped to achieve the goal of bringing out this souvenir.

The excellent photographs in the souvenir have lent glowing colour to the publication. Our thanks are due to the photographers and photo contributors. They are M/s. K. Ramakrishnappa, Project Director, Kabbalnala Watershed Development Programme, Kanakapura; C.J. Devanath, Ex- MLC - Mysore; B. Kesar Singh; A.L. Narasimhan; Vemagal Somashekar; V.S. Kalaseshwar; Narayanaswamy, Journalist, Kolar; Dr. Narayan, Director, CIMAP; the Librarian, Lalbagh Library; the Director, Information and Publicity Department.

We thank the many learned contributors of articles, without whose masterly exposition of matters connected with the history of Lalbagh, the Glass House, the artistic structures of Lalbagh, the plant wealth of Lalbagh, the natural landmarks of Lalbagh, the value of trees, flowering trees, thoughts on food, the dryland horticulture, etc., in lucid language and attractive style, which will capture the attention of both lay readers and academicians.

All this would be of no avail, but for the excellent work done by Mr. Venkataramaiah, Managing Director, Payonidhi Printers, who took infinite pains at every stage to give the souvenir an extremely attractive getup and artistic finish in short span of time. We are much indebted to him and I thank him with special attachment.

Our thanks are also due to M/s Unity Process, Bangalore, for their excellent colour separation work and M/s. Adwit (India) Pvt. Ltd., Bangalore, for the design and artwork of the cover-wrapper.

Finally, I thank all others who have helped us in bringing out this 'Commemorative Souvenir' in time, befitting the Centenary Celebration of Lalbagh Glass House.

M.L. Subbaraj

*Chairman - Souvenir Committee,
Vice Chairman - Mysore Horticulture Society,
Lalbagh, Bangalore - 560 004.*

JOHN CAMERON

John Cameron is regarded as the 'Father of Horticulture' in Karnataka. He was born and brought up in England. After his early education, he specialised in botany and later got trained at Royal Botanical Garden, Kew, London. On his arrival to India, he succeeded Mr. William New, as the Curator of the Lalbagh Botanical Gardens, in the year 1874. He took this assignment as a challenge and did his best to elevate the name and fame of horticulture in the erstwhile kingdom of Mysore.

His achievements are numerous and multifaceted. He enriched the plant wealth of Lalbagh by introducing countless native and exotic plant species, many of which later assumed the status of commercial crops. To quote a few are: 'Bangalore Blue' grapes, rubber, mulberry, apple, guava, cabbage, cauliflower, knolkhol, French beans, carrot, radish, etc. His interesting role in popularising 'Chow Chow' has become a story by itself.

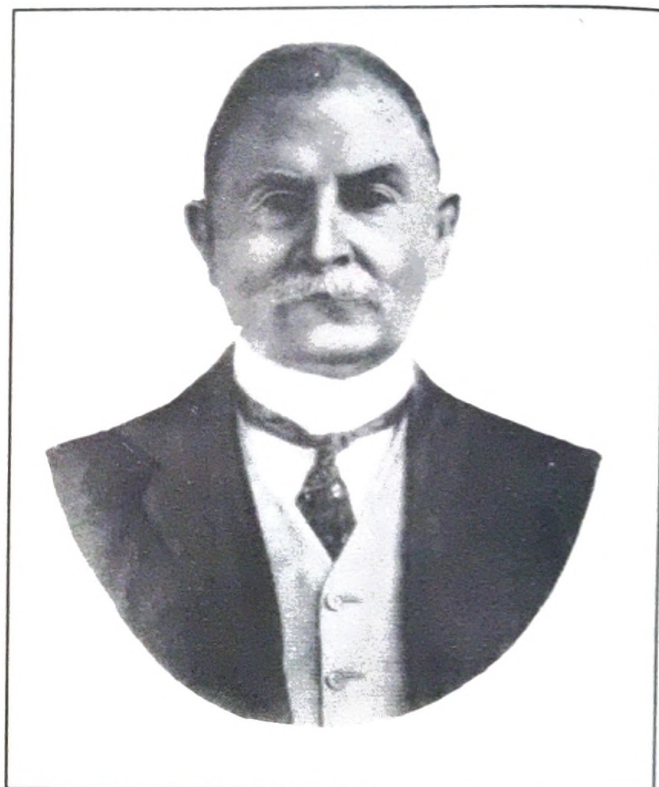
He toured extensively in the then princely state of Mysore and other parts of India, with a prime objective of exploring the plant wealth for the benefit of the society.

It is John Cameron who conceived the idea of constructing a conservatory (glass house) for acclimatising exotic plants and also for holding flower shows; and accordingly, the 'Albert Victor Conservatory' (the present Glass House) was erected during 1889- 90, under his personal supervision. This structure, in course of time, became venue for various celebrated events that turned the pace of horticulture in the state as well as the country.

John Cameron also started a zoo at Lalbagh on Systematic lines, mostly for entertainment to the children. For a shortwhile, he also served as the Superintendent of Government Museum at Bangalore. He attended various conventions on Horticulture and related aspects, both in India and abroad. He represented Lalbagh at the International Rubber Exhibition held at Peradeniya in Ceylon, in 1906.

During his tenure, the Lalbagh tank was built (1890). The compound wall was constructed around Lalbagh. The original area of Lalbagh, which was hardly 40 acres, increased to almost 100 acres due to his efforts. The artistic and elegant main entrance and gates were built during his tenure.

After a prolonged and dedicated service of 33 years, John Cameron retired in the year 1908 and after a shortwhile, he returned to England, his native land.



G.H. KRUMBIEGAL

Gustav Herman Krumbiegal was born at Lohemen, near Dresden, in Germany, on 18th December, 1865. He took his early education at Willsdruff and Dresden and later specialised in horticulture and landscape architecture. After having been engaged in various horticultural activities, he entered the Royal Botanical Gardens, Kew, London, and was appointed in the Plant Propagation Wing. He served the Kew gardens for five years. On the recommendation of the Kew authorities, he accepted the post of the Curator of Botanical Gardens, Baroda, an erstwhile princely state in India.

After a few years of his service at Baroda, he was requested by Krishnaraja Wodeyar, the Maharaja of Mysore, to serve his kingdom. Accordingly, in the year 1908, G.H. Krumbiegal succeeded John Cameron, as the curator of Botanical Gardens at Lalbagh, Bangalore. As a result of merger of various parks and gardens, hill stations and other horticultural establishments into the Department of Government Gardens, Krumbiegal's position was elevated to the cadre of Superintendent, and subsequently, to the post of Director of Horticulture.

His tenure as the Director of Horticulture started with hectic plant introduction activities. He had a keen insight about the methodical development of horticulture, on both aesthetic and commercial lines. To raise the reputation of the Lalbagh Botanical Gardens, he introduced an incredible number of exotic flora by making global correspondence and contacts. Thus, he proved himself a worthy successor to John Cameron.

During his office term, he did many outstanding contributions to the state as well as country. He is specially remembered for his contribution in laying out almost all the important parks and gardens, including the renowned Brindavan Gardens at Krishnaraja Sagar, near Mysore. During his term, the Mysore Horticultural Society also came into existence (1912) and conducting of flower shows in a grand manner became a regular feature of the horticultural activities.

In Lalbagh, he initiated various programmes such as cultivation of economic plants, opening of the 'Bureau of Economic Plants', and Horticultural Training School. The cultivation of 'Rome Beauty' apple reached its zenith by the special efforts made by Mr. Krumbiegal. By all these activities, he gave a new dimension to the word 'Horticulture'.

Thus, he served the state for memorable 25 years and retired in the year 1932. After his retirement, he settled at Bangalore and worked as the 'Landscape Advisor' to the state of Mysore, till his death in the year 1956.



H.C. JAVARAYA

Rao Bahadur H.C. Javaraya was born in the year 1889 at Mercara, Coorg district. He had his higher education in agriculture at Coimbatore. After this, Mr. Javaraya entered the service as Botanical Assistant at Lalbagh, Bangalore, in the year 1918.

Mr. Javaraya started his career in a most dedicated and disciplined manner. He was sent to the Royal Botanical Gardens at Kew, London, and underwent rigorous training in Horticulture. On his return, he assumed the post of Assistant Superintendent of Lalbagh and Government Gardens in the state of Mysore. Under the able guidance of G.H. Krumbiegel, the Superintendent of Lalbagh, he laid out many beautiful gardens and parks in Mysore city.

In the year 1933, he was sent on deputation to the then Imperial Government of India, as the Chief Marketing Officer, at Delhi, for a period of five years (1933-38). During his stay at the imperial capital, he did meritorious works, especially in the field of horticulture, which later won him the coveted title 'Rao Bahadur' (1941). He prompted and

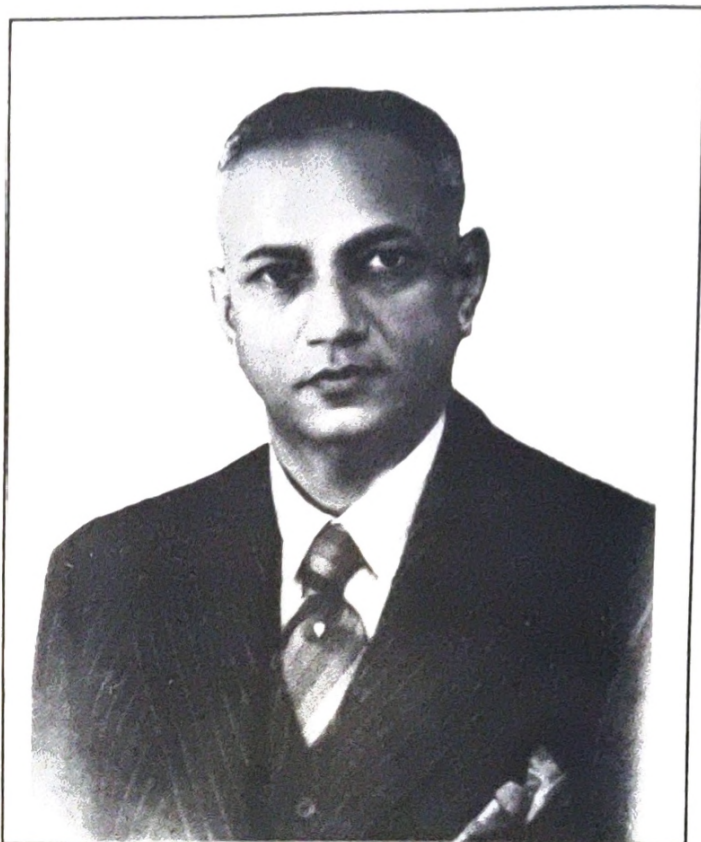
assisted the authorities at Delhi to conduct regular flower shows on the lines of those held at Lalbagh, Bangalore.

After his proud return from Delhi, he was elevated to the post of the Superintendent of Government Gardens and after a short span, he became the Director of Horticulture. Thus, Mr. Javaraya was the first and foremost among the native officers, who occupied the highest post in the Department of Horticulture in Mysore kingdom.

The contributions and achievements of Mr. Javaraya are really amazing. During his tenure, the eastern wing of the Glass House was erected during the year 1935. During the late thirties, a 'lantern shaped' guard tower was erected at the Basavanadudi gate of Lalbagh. This entire structure was brought from the residence of Dewan P.N. Krishnamurthy, and this is the ever first building to be transplanted in the entire state. The skillful efforts of H.C. Javaraya shown in this feat won him great appreciation from Sir Mirza Ismail, the then Dewan of Mysore State. During his times, an artificial cascade was made with great effort and labour, near lotus pond and was named as 'Jaya Cascade' and was inaugurated by Mr. K.V. Anantharaman, the then Minister for Revenue, in Mysore state. Apart from this, various avenues were laid out throughout the length and breadth of Lalbagh, during the times of H.C. Javaraya.

The full credit of starting Maddur Fruit Orchard and Ganjam Fig Garden goes to Mr. Javaraya. During his tenure only, the Government Fruit Research Station at Hessaraghatta was started (in 1938), with the financial assistance of the Imperial Council of Agricultural Research.

He retired from service in the year 1944. After retirement, he became the advisor to the Nawab of Bhopal on horticultural matters. He died at Bhopal in the year 1946.



DR. M.H. MARIGOWDA

Dr. Marigowda was born on 8th August 1916 at Mysore. He had his early education at Mysore and later higher education at Lucknow, leading to M.Sc. degree in Botany.

He joined the service at Lalbagh in the year 1942, as the Assistant Superintendent of Gardens, under Rao Bahadur H.C. Javaraya, the then Superintendent of Government Gardens. In 1947, he was sent to England to undergo a rigorous training in horticulture at the Royal Botanical Garden, Kew, for a period of six months. From England he proceeded to the United States of America in 1948. There he joined the world famous Harvard University and obtained his Ph.D. degree in Botany in the year 1951. In the same year he returned to India and assumed the post of Deputy Superintendent at Lalbagh; and in a shortwhile, he rose to the post of Superintendent of Government Gardens and in 1963, the Director of Horticulture in Mysore State.

It is Dr. Marigowda who is entirely responsible for elevating the minor Department of Horticulture to a major

Department, by effecting around expansion of the horticultural activities in the state. He set into implementation an unique pattern of horticultural development out of his long-standing experiences and forethought. He called this model as "4-Limbed Model of Horticulture". To suit to this, he established the Horticultural Produce Cooperative Marketing Society and the Bangalore Nurserymen's Cooperative Society, at Bangalore. To spread the horticultural knowledge to the people, he started 'The Lalbagh' journal in English and 'Totagara' in Kannada.

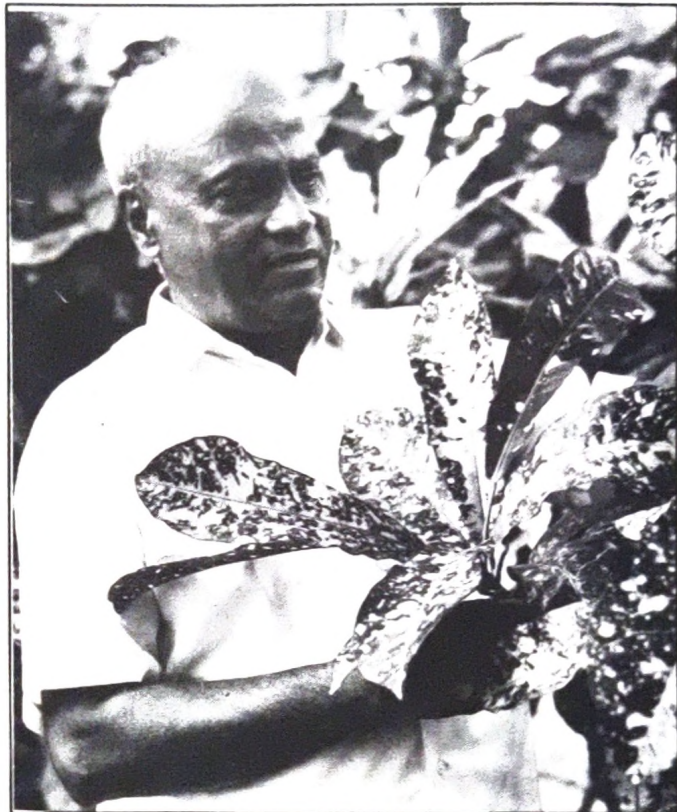
During his office tenure, Dr. Marigowda started as many as about 380 farms and nurseries, all over the state. His visualisation of these farms and nurseries was in developing them as progeny orchards, nursery centres and places of demonstration of new crops and new technology to the farmers. Similarly, he started very useful programmes such as production of Tall x Dwarf coconut seedlings at KRS, Dwarf x Tall coconut seedlings at Bellara (Tumkur district) and elite Tall x Tall coconut seedlings at Kannamangala near Bangalore.

Dr. Marigowda felt that for the modernising the horticulture, there should be the backing of scientific laboratories. This idea of his led to starting of Plant Protection Laboratory, Soil Testing Laboratory and Seed Testing Laboratory, at Lalbagh, Bangalore. These laboratories gave new fillip to the development of horticulture in the state. He is also responsible for starting a Dehydration Unit at Lalbagh. Dr. Marigowda, did not lag behind in plant introduction; he introduced many indigenous and exotic species into Lalbagh and other farms and nurseries.

Dr. Marigowda was a staunch advocate of dryland horticulture, and to demonstrate the worth of this, he started many dry orchards in the state. He also popularised many special methods of soil and water conservation to aid dryland crops. Mixed and inter-cropping got special fillip during his times.

Thus, through his achievement and feats, the state of Karnataka became the 'Horticultural State' of India and Dr. Marigowda's name became immortal in the annals of horticulture in Karnataka.

He retired from service in the year 1974, and since then residing at Bangalore. He is still actively working for the cause of horticulture and rural development.





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GLASS HOUSE, 'THE JEWEL' OF LALBAGH

The city of Bangalore, known as the '**garden city**', occupies a special place of pride in India. This is so not just on account of its external beauty, but also because of its finer qualities, seen through its countless parks and gardens.

In the necklace of Bangalore's parks, Lalbagh is the pendant. And set at the heart of this pendant is a diamond in the form of Glass house, which was built in the year 1889, to commemorate the visit of the Prince of Wales. The Glass house was originally designed on the lines of the Crystal Palace of England, it was built with the specific objective of providing a sequestered locale for flower shows. But, over time, its scope is widened. The Glass house is now a national venue for conducting various meetings and public functions. It is gratifying that this magnificent and enduring structure has now completed 100 years of history.

The Lalbagh garden has demonstrated a marvellous capacity for accepting, accommodating and sheltering its vast and varied collection of flora. Its collection

covers a broad spectrum of intercontinental plant wealth. Bountiful nature, and an ideal climate, have helped making this garden something of a beauty spot.

HYDER ALI'S DREAM

Lalbagh was established during the time of Hyder Ali on the model of Mogul garden at Sira. It was later enlarged by his son Tippu Sultan, who enriched this garden by the addition of varieties of flower plants by procuring seeds and plants from Kabul, Persia, Mauritius and Turkey. We cannot fail to mention, on this occasion, Sir Mark Cubbon, the Chief Commissioner of Mysore, who took over this garden in 1856 and Cleghorn, the then Chief Conservator of Forest in South India who elevated it as a Botanical Garden. Due to the remarkable work done in this field by succeeding generations of Horticulturists, Lalbagh has grown to be the treasure house of rare and sub-tropical plants, indigenous and exotic fruit trees. The garden is now regarded as a guiding centre for research,



Glass House, 'The Jewel'

extention and developmental activities in the entire State. Today, Lalbagh and the Glass House have come to symbolise the development of Horticulture, reminding us of the significant contributions made by the great Horticulturists of our country. The inaugural function of the Glass house Centenary Celebrations is, therefore, an occasion for us to reflect on our achievements and plan for the future.

PIONEERING EFFORT:

The State of Karnataka, blessed with favourable agroclimatic conditions, is uniquely suited for growing Horticultural crops and running Horticulture based industries. A wide range of Horticultural crops can be grown here. As a result, there is a glut in some and scarcity in others. What is needed, therefore, is to plan production in specific areas keeping the centres of consumption in view. In addition, appropriate storing, marketing and infrastructure facilities will have to be built up to ensure the maintenance of quality and to avoid losses in transit and storage. The State Department of Horticulture, the University of Agricultural Sciences and the Indian Institute of Horticultural research can play a great role in this field. India has a potential not only to meet its own needs but also of developing an export market in fruits and vegetables. The Production levels suggested by the National Commission on Agriculture will, if achieved,

be sufficient to fulfil internal as well as export obligations. The quantity that is being exported, at present, as far as fruits and vegetables are concerned is insignificant when compared to potential available. Some small countries like Holland, which export very large quantities of flowers, fruits and vegetables in fresh as well as processed form, is worth quoting here.

GLORIOUS FUTURE:

The potential for export of fruits, flowers and vegetables is unlimited and it should be explored fully by planning, development, and export programmes, in a systematic manner. Suitable varieties will have to be bred and popularised so that the production will increase, and costs come down to competitive levels.

The poet Keats said:

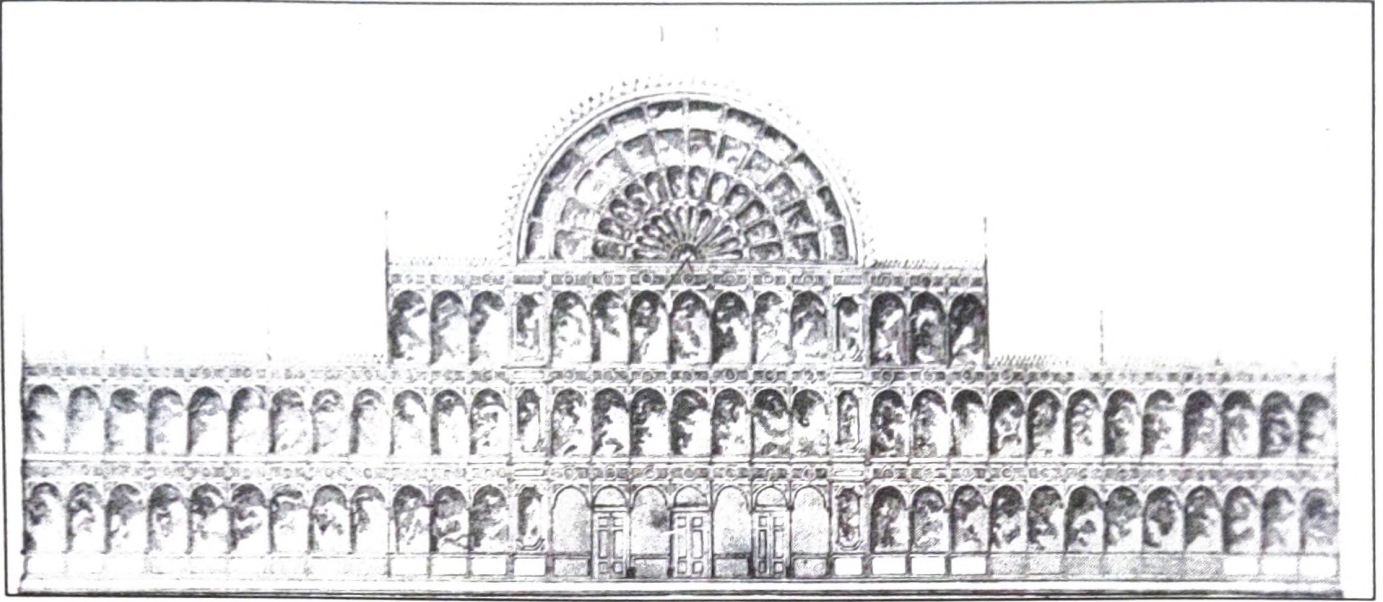
"A THING OF BEAUTY IS A JOY FOR EVER"

Let the Glass house bring eternal joy to the people and may the Glass house celebrate not one but many centennial years in perpetuity.

[Speech read by H.E. The President of India, Sri R. Venkataraman, on the occasion of the inaugural function of the Glass house Centenary held at Glass House in Lalbagh on 16.12.1989.]



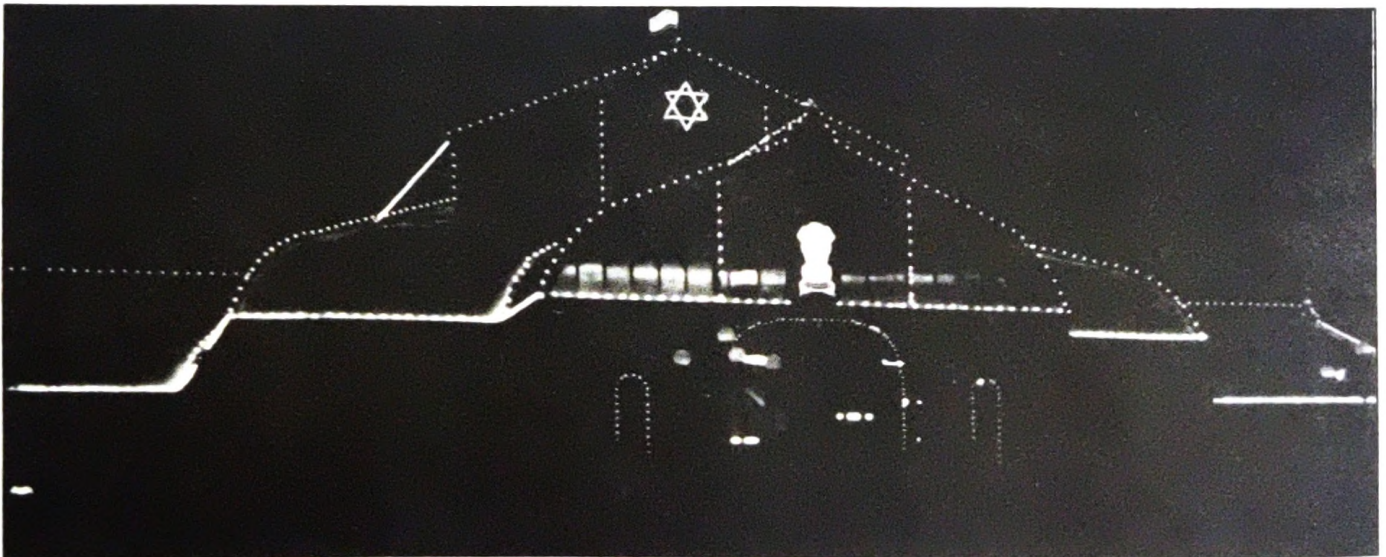
The facsimile of the original foundation stone of the 'Glass House'



The Crystal Palace of England

The Crystal Palace of India

There is a stunning resemblance between Bangalore in India and London in England, as many structures in Bangalore city have been modelled upon the structures in London. The foremost of these structures is "The Glass House of Lalbagh". Constructed in the year 1890 on the model of Crystal Palace of London. The Crystal Palace was constructed in the year 1851 at Hydepark London, to house the world's first and great exhibition. This was a huge glass conservatory measuring 1600' x 384'. After the exhibition was over, the glass conservatory was removed from the exhibition ground and refixed on the top of the Sydenham Hill in South London. There it remained as an important centre for musical programmes, athletic activities and exhibitions until 1936, during that year it accidentally caught fire and was burnt down. Thus, the glory of the great structure 'CRYSTAL PALACE' ended. Only its model remained with 'The Glass House' in Lalbagh, Bangalore. Hence, it may not be wrong to call the Glass House of Lalbagh as the Crystal Palace of India.



Glass house - The Crystal Palace of India

THE EARLY LONG HISTORY OF LALBAGH

Dr. Suryanath U. Kamath

Chief Editor: Karnataka Gazetteer

Though started as a royal pleasure park during the 18th century, Lalbagh has grown not only as a pleasure park of the common man during the 20th century, but also as a botanical garden and a centre of advanced Horticultural activity in Karnataka.

A botanical garden necessarily is an important genetic source centre. Apart from introduction, maintenance and acclimatisation of plants, this area envisages

documentation of all the variation available in plants of ornamental and economic value which would *ipso facto* serve as source material for creating new and meaningful variations. In such a scheme, apart from the cultivated components of a particular taxon, the related wild taxa are also studied.

The profession of gardening in India has been inherited from time immemorial. Literary sources speak of *udyanas* and *pushpa vatikas*. Palaces, houses of the rich and temples had parks and gardens. Temples raised them to supply flowers and leaves (*patra*) for divine service. Muslim rulers, especially the Moghuls, paid special attention for laying out vast gardens. Shalimar garden of the Moghuls is a famous example.

Hyder Ali

Lalbagh at Bangalore is of royal origin. Hyder Ali having the Moghul taste for gardens is acknowledged to be the founder of all the three gardens called Lal Bagh, one at Srirangapatana, the other at Malavalli and the third at Bangalore. During that period, there were already one or two royal gardens in the State eg., (a) Khan Bagh an extensive garden at Sira, estab-

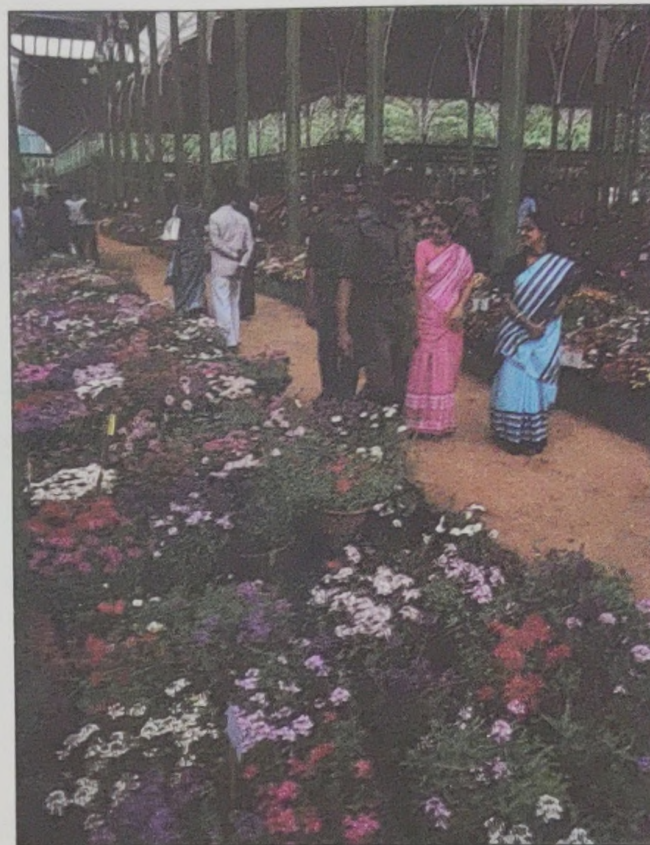


Rear view of the Glass house

lished during the time of Dilawar Khan, the Moghul Emperor's representative in the South, (b) Bidanore Garden, often referred to as 'a garden equal to the garden of paradise', the pleasure garden of the Hindu Rani of Bidanore. Hyder Ali planned Lalbagh at Bangalore principally on the model of the one at Sirsa. In 1760, Hyder Ali selected a spot (later developed into the present garden) about a mile east of Bangalore Fort and a few hundred yards west of the Kempegowda tower and created a royal retreat and orchard of about 40 acres in extent. (However Sir. Mark Cubbon says that it measured only 34 acres). Oral tradition has it that some small garden already existed in this site.

Hyder Ali imported plants from Delhi, Multan, Lahore and Arcot to beautify the garden. Tamil speaking gardeners, namely *Thigalars* were brought to look after the garden. Dr. Francis Buchanan (1800) writes that "Hyder's garden is watered from a reservoir without the assistance of machinery. The taste of Hyder accorded more with the English. His walks are wider, his cypress trees are not so much crowded; and in the means of watering the plots there is not so much masonry or bricklayer's work employed".

Tipu must have expanded the existing garden by acquiring more land, says Buchanan for he speaks of gardens of Hyder and Tipu separately. "Hyder's garden is watered from a reservoir" says he and also says that "The garden of Tipu is supplied from three wells, the water of which is raised by the capily or leather bag". Speaking of fruit trees in Tipu's garden, "Some pine and oak plants lately introduced from the Cape of Good Hope, seem to be thriving" and he further adds "Tipu procured exotic plants and seeds from Kabul, Persia, Mauritius, Turkey and Africa. Two old mango trees, said to have been planted during his regime still adorn the garden. According to a contemporary of Tipu the garden was first laid out by Hyder Ali and later developed by Tipu Sultan. He says that a plant from Africa was very curious, and grew very high and had leaves like very big fans. The roads from the entrance to the garden and inside the garden were said to be lined with cypress trees closely planted and had low masonry platforms all along. Very tall, large and shady trees also were in the Lalbagh and the *bagh* was watered from a tank as well as wells. Drains had been built to carry water in every direction. The garden had several enclosures and each enclosure had only one variety of trees. Fruits were in abundance such as plantains, apples, rose-apple, jack-fruits, custard apple, peaches, papaya, cashewnut, figs, etc. Vegetables were also grown in different plots. Flowers were in abundance. Mogra, rose, Chameaili were strewn in grounds. There were plants



A view of flower show

of black pepper, nutmeg and cinnamon. Much care was taken in the cultivation of rice varieties, of which the Sultan got from Arcot, Kurnool and Travancore. Besides rice, ragi, sorghum, wheat, beans and different kinds of pulses were grown.

Tipu Sultan maintained a regular garden establishment. The headman incharge of the garden was called Daroga (Chief Gardner). Two Darogas (Mohammed Ali and his son Abdul Khader) were in charge of the garden successively. A small tank on the southern end of the garden was originally the main source of water supply. Three additional wells were dug during his period and water was lifted in big leather drums with the help of bullocks". Dr. Buchanan further adds "Tipu improved the gardens to a great extent and even as late as in 1798, he obtained plants and seeds from the Isle of France (Mauritius). Lalbagh grew to be a treasure house of rare and valuable collection of tropical and sub-tropical plants and indigenous and foreign fruit trees. The gardens are extensive and divided into square plots separated by walks, the sides of which are ornamented with cypress trees. These plots are filled with fruit trees and pot



Statue garden in Lalbagh

herbs. One plot is entirely filled with rose bushes, another with pomegranate and so forth. The walks are not gravelled and the cultivation of the whole is rather slovenly, but the people say that formerly the gardens were well kept. Want of water is the principal defect of these gardens, for in this arid country everything during the dry season must be artificially watered".

The Lalbagh at Bangalore at that time, in addition to its being pleasure park, was also intended to serve as nursery to supply seeds and plants to farmers. The garden served the purpose of an experimental farm. After the death of Tipu Sultan in 1799, Lalbagh came in to the possession of the East India Company's Botanist Major Waugh. During his time, the Lalbagh was well stocked with a variety of foreign fruit trees, useful vegetables and choice and curious plants.

Major Waugh appealed to the Governor General of British India, Marquis of Hastings and proposed that the Lalbagh at Bangalore be taken over by the Botanical establishment at Calcutta. Dr. Nathaniel Wallich (the then Superintendent of the Bengal Presidency Botanical gardens) by way of acceptance of this gar-

den as branch of Bengal Presidency Botanic Garden stated that he knew the garden in question at Bangalore for a long time as affording a striking instance of the practicability of bringing the fruits of Europe to complete perfection in this country, under a happy combination of favourable localities of soil and climate when aided by such efforts of zeal, skill and indefatigable perseverance as those which have distinguished the useful labours of Major Waugh. He added that the climate of Mysore was eminently suited to the purposes of Horticulture and for that reason might, be made a sort of an intermediate nursery or depot for the introduction and acclimatisation of the fruit trees of England.

East India Company

The garden was accepted by the Governor General who wrote to the Madras Government that Major Waugh's Garden might in connection with the Hon'ble Company's Botanical Garden would serve as an intermediate nursery for introducing and acclimatising in India the trees and plants of Europe and China. The

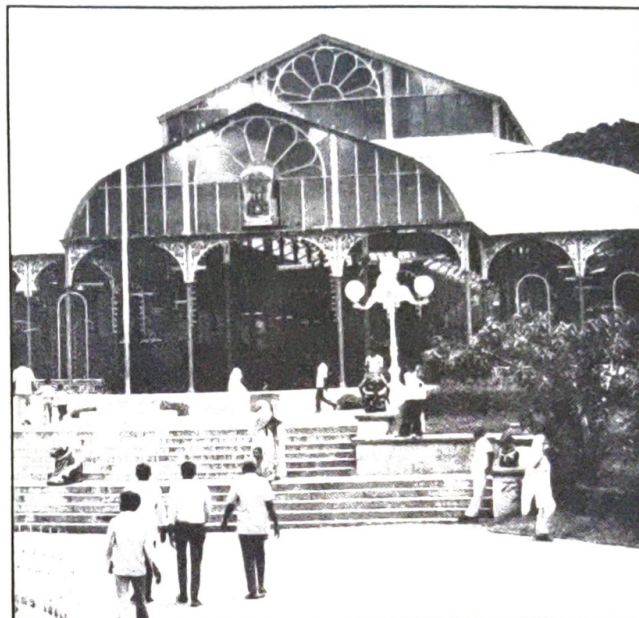
garden thus became a property of East India Company and remained so as a branch of the Bengal Presidency Botanical Gardens from 1819 to 1831, under the general superintendence and control of Dr. Wallich, the Superintendent. The expenses of maintaining the gardens were charged to the Supreme Government.

In the year 1831, on the assumption of administration of Mysore by the British Company, the Lalbagh passed into the hands of the Chief Commissioner of Mysore and continued under his general supervision till 1836. At this time the, Agri-Horticultural Society Branch was established in Bangalore, to which officers of the Mysore Commission, officers of British forces at Bangalore, clergymen and eminent persons at Bangalore enrolled themselves as members. They approached the Government for the grant of rent free Lalbagh, which although seriously injured by mismanagement, still contained a number of rare and 'useful though neglected trees and plants'.

On 27th February 1836, Sir Mark Cubbon recommended to the Governor General with the observations that "Great public benefit may be expected to arise from this institution, not only in objects merely Horticultural and the extension of Botanical knowledge, but in the promotion of the Agricultural interests of the country by the introduction of new and valuable productions suited to the climate amongst which may be enumerated varieties of sugarcane and tobacco far superior to any, now produced in Mysore and by affording the people the means of obtaining gratuitous instructions in improved modes of cultivation". The Lalbagh was transferred to the Society in 1836.

Argi-Horticultural Society

The Agri-Horticultural Society was assisted by the Government in the way of providing convict labour and all other respects by public contributions. Mr. William Munro, Secretary of Agri- Horticultural Society, in the report of 1838-39 writes that "The garden establishment is very same as it was at the last general meeting, and the principal heavy expenses have been caused by building seed house and dwelling house for the European Superintendent, constructing hot-beds, building walls and the payment of prizes awarded at various exhibitions". He recorded that the exhibitions incurred heavy expenditure, but they were attended by more people. Regarding garden, he observed that the "Mauritius sugarcane was cultivated in the garden and had thriven remarkably and was admired by all the natives who saw it. New method of



Front view of Glass house

planting in holes and other experiments with various manures already have proved that sheep's dung is by far the best. The produce of oats had been great and was very superior. Wheat of various kinds had been cultivated and distributed to a certain extent among natives. A small quantity of barley was grown. A great number of trees and plants were introduced, upwards of 200 species. A catalogue of all the plants in the garden has been completed and would be printed. A considerable improvement had been effected in the flower pots made after the English shape and sizes, and kept in the gardens, sized and marked to agree with books on English gardening."

The Secretary used to train the local people in Horticulture business who rendered assistance to him without receiving pay. He introduced tickets for admission to the garden and more than 900 rupees were received. A book was kept in the garden for the members and their requirement of plants, seeds, varieties of fruits, etc., were recorded and the same were supplied to them. He recommended that a small portion of ground in each taluk might be placed under the Superintendent to be cultivated on the part of Government. Perhaps this later influenced the Horticulture department headed by Dr. M.H. Marigowda to establish a farm in every taluk of the state during present century. He said that the advantages of the garden are confined to experiments in ameliorating fruits, grain, etc. He suggested that some one be permanently appointed to the charges of the garden who might also be

entrusted with the care of Agriculture in Mysore it would be of universal advantage if there is now a Botanical garden in this Presidency. He said and felt that Government could not fix upon a more eligible spot than this plot. There was cultivation of the mulberry and production of silk was introduced. An information brochure on silk in English was translated into Kannada and circulated all over Mysore. The constantly fluctuating number of subscribers, the frequent departure of valued supporters and other similar causes led to the dissolution of the Society in 1842 and the garden was then restored to the Chief Com-



Fancy Fountain in front of Glass House

missioner of Mysore.

Dr. Cleghorn, chief conservator of Forests, in Madras Presidency and Superintendent of Botanical Garden in South India, was appointed in 1855 to the office of Botanical Adviser to the Government of Mysore under the Chief Commissioner. In 1856, Dr. Cleghorn and Jeffrey, Superintendent of Madras Gardens came to Bangalore to select a site for the establishment of a Horticultural garden in the city. Dr. Cleghorn saw no other site so well adapted as the Lalbagh in all other aspects. Considering the potential of Lalbagh, it was ultimately agreed that the Lalbagh (formerly selected by Hyder for a garden) was the most eligible spot for the establishment of a Botanical garden at Bangalore. His recommendations at the time are very interesting. He advised the employment of a skilful and experienced European Superintendent with the object "not merely to improve the culture of indigenous productions, but at the same time to naturalise exotics and prepare both for introduction in the plains". He suggested that a Superintendent should be enter-

tained on a salary of Rs.150 per mensem, with a suitable residence in the gardens or in the immediate neighbourhood and should have a writer acquainted with English and vernaculars for Rs.25 per annum. He proposed an allowance of Rs. 125 per mensem for the permanent establishment of maistries and gardeners. He also recommended one time expenditure of Rs.2000 for clearing the ground, gravelling the walks and other preliminary works including the assistance in way of convict labour. He wanted the Chief Commissioner to retain control over the Lalbagh with reasonable degree of freedom to the Superintendent to operate. He was against the plan of a subscription garden which had been tried on Lalbagh itself. He also observed that injury would result if the gardens were to enter into competition with market gardeners. He was against turning the garden into a commercial enterprise. The Botanical Garden should concern itself with the improvement of indigenous products, the introduction of exotics, the supply of these to the hills and plains when acclimatised and the exhibition to the people of an improved system of cultivation in practical and successful operations. He also envisaged exchange of plants and seeds with the gardens of Madras, Calcutta and Ooty.

Dr. Cleghorn's report was forwarded to the Governor General by Mark Cubbon, with the recommendation that the general superintendence be given to Dr. Cleghorn with an allowance for his service. The Governor General approved the creation of 'Government Botanical Gardens' and sanctioned a monthly grant of Rs.300 and a lumpsum grant of Rs.4000 towards contingent expenses. Dr. Cleghorn was given an allowance of Rs.200 per mensem.

Government Establishment

Thus in August in 1856, the Lalbagh became a Government Botanical Garden, a Government controlled establishment. In the early part of 1856, Sir William Hooker, Director of Royal Gardens, Kew and Dr. Royale of East India House were requested to make available the services of a professional Horticulturist for the Lalbagh. Pending the arrival of a Superintendent, a maistry gardener (Heera Lal) was appointed on Rs.25 per month and placed in the garden to carry out certain work under the instructions of Dr. Cleghorn. A committee consisting of the Secretary to the Chief Commissioner, the Superintendent of Bangalore Division and Dr. Kirkpatrick, was set up to take measures to preserve all the more interesting Botanical specimens and to make the ground generally as attractive as possible. In two years (1856-1858) a great deal of work was done, the walks were gravelled and

broadened; a dwelling cottage and the office of the Superintendent was constructed in the garden at a cost of Rs.2000, the garden compound wall was erected at the a cost of Rs.540 and two large manure pits were prepared.

Mr. William New, who was incharge of a certain portions of the Royal Gardens, Kew and possessed high testimonials from the Committee of Management of the Belfast Garden (where he had once worked), was selected by Sir William Hooker for the post of Superintendent of Botanical gardens at Bangalore. He reached Bangalore on 10th April 1858 and assumed charges as the first Superintendent of the Botanical gardens. He brought two valuable cases of plants from the Royal Gardens at Kew and at the same time, two cases were received from the Botanical Gardens, Calcutta, one from Sydney and a large collection of fruit trees were received from Udhakamandalam (Ooty) Garden. Thus, he began the work of organised introduction of plants into Lalbagh and exchange of plants with other Botanical Institutions in India and abroad. In his letters to Kew he wrote; "There is no one who takes any great share in the management of the garden in Dr. Cleghorn's absence, but when anything is wanted, it is obtained by applying to Captain Cunningham, Sir Cubbon's Secretary; Dr. Kirkpatrick looks over the accounts, and any new road or walk is executed under the superintendence of Captain Puckles of the Public works Department; at present there are employed for watering, cleaning and garden work 16 men with a maistry as he is called over them".

Forging ahead

During his tenure, William New made every effort to improve the beauty of the garden, to introduce plants of value and to distribute them as far as possible. In the summary of his report for 1858-59, he has given an account of fruit plants received from the garden of Udhakamandalam (Ooty) and seeds and plants from Sir William Hooker, along with other details of improvement such as addition of three more wells, the brick lining of the open ditch, the formation of a walk on the tank bund, the grafting of fruit trees and other works executed in the garden. Cleghorn on seeing the garden report of 1859-60 wrote that New's practical knowledge on Agriculture fits him for his job. The utility of manuring, deep trenching and clean weeding were demonstrated to the market gardeners and the public by the excellent results he obtained. These induced many natives and market gardeners to start visiting the Lalbagh to buy 'graft' results. A few of the Australian Eucalyptus planted by New just behind the



A Panoramic view from Glass House

tank bund and the drive, are still growing well in the garden.

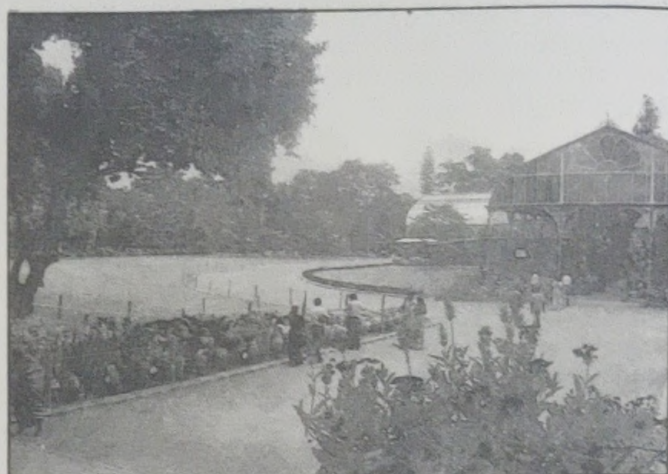
During New's Superintendentship a library of Horticultural books was started and on the suggestion of Dr. Cleghorn, he prepared a complete list of plants found in the garden. The list was communicated to the Botanic Society of Edinburg in the year 1861. It was published in 1861 and republished in 1863. The eastern boundaries of the garden were extended by 50 yards in 1859-60. The following species were included in the list of plants prepared by Mr. New. *Grevillea robusta*, *Araucaria excelsa*, *Amherstia nobilis*, *Anona muricata*, *Averrhoa bilimbi*, *Poinciana regia*, *Cassia florida*, *Carica papaya*, *Parkinsonia aculeata*, *Eriobotrya japonica*, *Casurina equisetifolia*, *Castanospermum australe*, *Araucaria bidwillii*, *A. cookii*, *A. cunninghamii*,

Cupressus sp, *Damara robusta*, *Bixa orellana*, *Hibiscus rosa-sinensis*, *Gossypium barba-dense*, *Coffea arabica*, *Vanilla aromatica*, *Pisum sativum*, *Arachis hypogaea*, *Medicago sativa*, *Daucus carota*, *Brassica oleracea*, *Lactuca sativa*, *Solanum tuberosum*, *Beta vulgaris*, *Myrtus communis*, *Corypha umbraculifera*, *C.australis*, *Ammomum angustifolium*, *Macadamia* sp, *Podocarpus longifolia*, *Pinus longifolia*, *P.sylvestris*, *P.pseudo-strophilus*, *Allamanda cathartica*, *Achras sapota*, *Persea gratissima*, Java fig, Moretonbay chestnuttrees, Mahogany, litchi, guava, pineapple, tobacco, etc.

Mr. William New resigned from service in December 1863 and on the recommendation of Sir W.Hooker, the services of Mr.A.Black from Kew Herbarium was secured and he was appointed as Superintendent. He continued New's policies. A collection of 150 kinds of flower trees was received from Kew during 1864 in his time. He kept up the exchange list of other gardens, Mr Black, however, resigned from this post during the year 1865 due to his poor health and Mr New was reappointed as Superintendent. Mr. New was also a member of the Bangalore Horticultural Fete (show) Committee during 1866, which organised the Horticultural show at Lalbagh. He continued in this post until his death in August 1873.

Mysore Government takes over

John Cameron took charge as the Superintendent of Government gardens in 1874. He introduced scientific and systematic methods in gardening. He evinced keen interest in systematic introduction and acclimatization of plants of economic value in the State. Experimental cultivation in the Lalbagh was carried out on crops like cotton, rubber and grapes, fruit plants, groundnut, dates, coconuts, mulberry and others. The results of his experiments were made known to all and as a result, many of these plants came to be grown all over the State and contributed much to the wealth and fame of Mysore. The official supervision of the garden continued to be under the Commissioner until the Rendition. At the Rendition in 1881, the garden passed into the hands of the Government of the Maharaja of Mysore. Under the State Government, the area of garden was increased. From the original area of 40 acres. The garden area was more than doubled. During 1888-89, an area of 22 acres and 36 guntas was purchased in addition to the land purchased during the previous year. Eight acres of land was purchased during 1890. In 1889-90, 30 acres of land situated between the eastern boundary, the wall of the existing garden and the nullah skirting the foot of the Mantapam rock was purchased. Acquisition of the



A view of Lawn and flower beds

Mantapam rock to the east of the exhibition building was made in 1891-92, the area being 13 acres lying under the rock and sufficient land outside the main entrance gates was acquired in 1890-91 to prevent any encroachment. In the year 1894, immediately under the rock and east of the garden an area of 9 acres and 21 guntas was acquired for the extension of Botanical gardens. By the turn of the century, the total area of the gardens was more than 120 acres.

Founding of Agricultural Society

After the dissolution of the Agri-Horticultural Society in 1842, an attempt was made again to start the society in 1867 and application was made to the Secretary to the Commissioner, Bangalore, on 22nd February 1867 for the formation of a Agricultural Society at Bangalore. This Society was to promote the advancement of the Agriculture and Horticulture by dissemination of seeds and to impart practical knowledge. This was approved by the Commissioner. The Commissioner, while agreeing, said that "the establishment of an Agricultural Society having in view the objects mentioned, could not fail to prove beneficial in promoting the advancement of Agriculture and Horticulture" and he felt that with increasing number of the permanent residents in Bangalore, the difficulties experienced by the former Horticultural society would not be felt again.

Flower shows

Flower shows were held by this society right from the beginning. They were held for several reasons like creating public awareness to entertain the public. For conducting these shows the Government paid the cost of prizes direct to the Society for some years and later on it was absorbed direct in the garden budget.

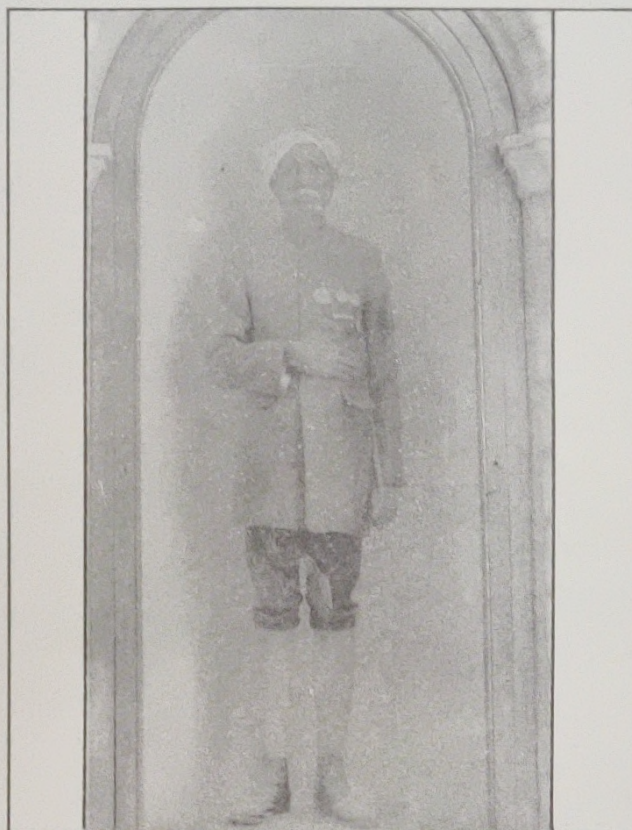
The Society was basically an association of members and legally it was not a Society. Its early members were highly influential and the committee members were all Europeans. The society helped in distributing and procuring seeds and plants from other places in India and abroad. They arranged for lectures on Horticultural and allied fields. They also gave technical advice to members. The Society maintained its own library and published its own bulletins and journals. After long gap, the flower exhibition was conducted on 16.12.1867. The annual flowers shows were continued during the subsequent years. Admission to the first flower show was free, but admission by tickets was practiced from December 1867. Under the auspices of the Agri-Horticultural Society, the shows held in August-September were known as summer shows and the ones held in January-February were known as winter shows. All the shows were notified in the Mysore Gazette with approved prize schemes. Cameron reports that "but it is being an oriental custom to exhibit animals with plants in garden, it is presumed that the native visitors felt the want of animals and birds in Lalbagh. As a matter of fact a large percentage of sightseers in all countries prefer to watch the movement of animals to viewing beauties of flowers and trees". It was probably for this reason that mixed arrangement of the garden and the zoo had been so long maintained. Earliest mention of an animal secured by the Lalbagh Menagerie was in 1862, when a black panther was purchased. By 1877, there were a few animals and a fairly good collection of birds. Expenses on Menagerie and Aviary were reduced in 1879 and many less important birds and small animals were either sold or let loose. A few tigers, kangaroos, and deers were donated to the Menagerie during 1889-90. An orangutang and a pair of monkeys without tails were also procured. Orangutang was quite popular with the visitors. A pigeon house for 100 pairs of pigeon was built in the form of a Dove Cot. The plague of 1899 had a bad effect on the strength of the Menagerie and Aviary. As on 16th November 1900, there were only 60 animals and the birds. All these animals were later transferred to the Mysore zoo.

The Glass House

In the year 1888, John Cameron proposed for construction of Glasshouse for the sole purpose of holding Horticultural shows. Construction of the glass house was completed in 1890 at a cost of Rs.75,000 = 00. Temporary power connection was given to the glass house in 1905 and permanent power connection was given to the Glass house in 1913-14.

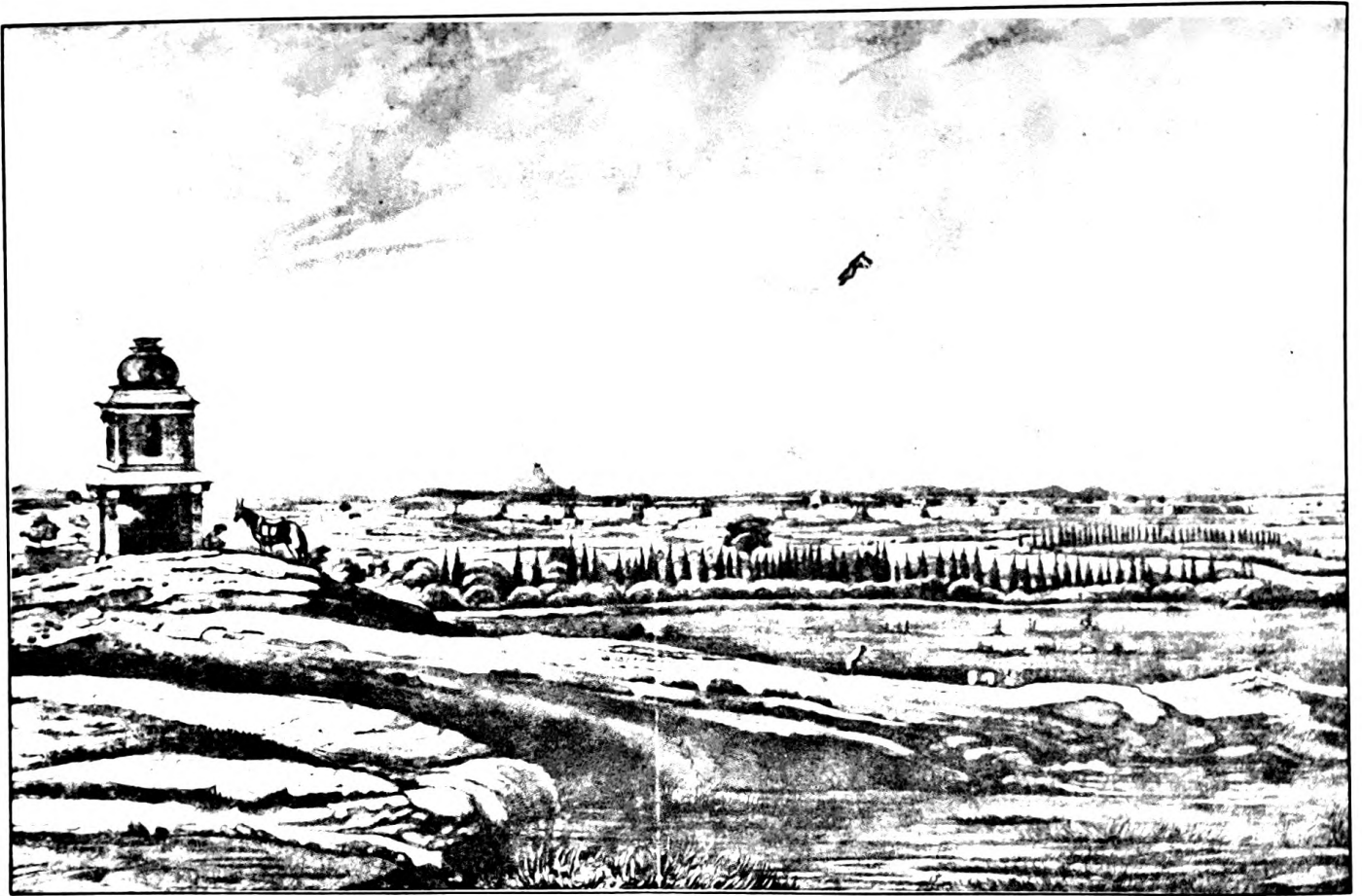
Cameron retires

J. Cameron was regarded as the life and soul of the Government Botanical Gardens at Bangalore from 1874 to 1908, till he laid down his office and went back to England. His name is particularly associated with introduction of useful plants not only to the garden but also to the State. His letters to the Kew Gardens are interesting and valuable and reveal his zeal for enriching the collection of plants of economic value to the State. He collected a large number of Botanical drawings and colour plates and prepared a list of names of hundreds of plants. After retirement of Cameron, Gutsav Herman Krumbiegal assumed the charge of the Botanical Gardens. So important was his service to the Lalbagh and to the State in general that a main road near the Lalbagh is named after him.



A Gardener Immortalised !

It is the gardener who cares for every plant in any park or garden. Countless gardeners have toiled hard to keep Lalbagh and Cubbon park ever beautiful. In memory of one such gardener, a life size statue is installed at the entrance of Bangalore palace.



Cypress garden in Bangalore - Drawn by R.H. Colebrooke (1793)

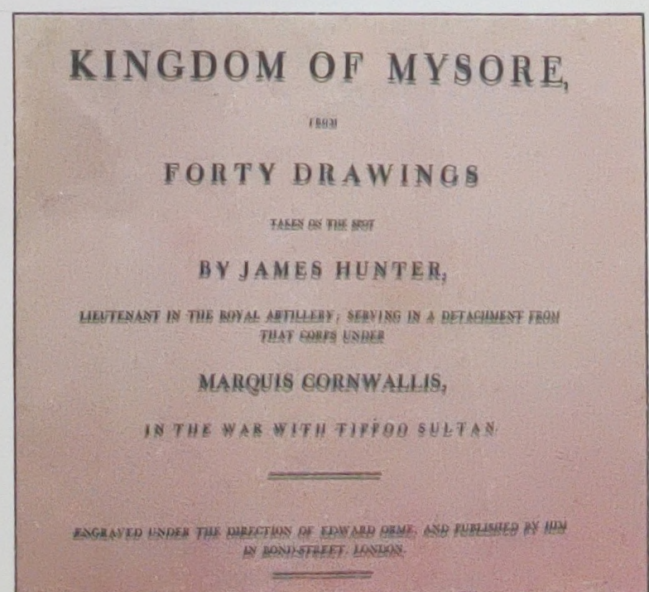
A NEW LIGHT ON THE HISTORY OF LALBAGH



East view of Bangalore with the 'Cypress garden', from a Pagoda - James Hunter - 1805

'LALBAGH' is the name by which the famous garden at Bangalore is called now. But 'Lalbagh' is not the original name of the garden. There are no records to prove that it was called 'Lalbagh' till 1856. In earlier records it was referred to as 'Mango tope' and also as "Cypress garden". A painting of this garden drawn on the spot by R.H. Colebrooke was published in 1793 at London, and it was given the title as "Cypress garden" in Bangalore. This drawing has also been printed in the hand book called 'Horticulture in Mysore' by the Department of Horticulture. It was published in 1957, in commemoration of centenary celebrations of Lalbagh Botanical garden. Another painting of the Lalbagh with a view of Bangalore in the background by James Hunter can be seen in an Album - published in 1805. James Hunter had also given the title to the painting as "East view of Bangalore with Cypress garden".

This garden was handed over by Major Waugh, a Military Botanist to the Lord Marquis Hastings in the year 1819. In the correspondence ensued between Metcalfe, Secretary to Marquis Hastings, and Dr. Wallich,



Album of Paintings by James Hunter - 1805

Superintendent, Botanic garden, Calcutta. It was mentioned that this garden belonged to Major Waugh and he intended to give it as a gift to Marquis Hastings. Dr. Wallich had recommended to the imperial Government to take this garden and maintain as branch of the Imperial Botanical garden at Calcutta. An interesting point is that this garden had been referred either as the 'garden of Waugh' or 'Garden at Bangalore' and no where it was referred as 'Lalbagh'. And also another interesting point to be observed in the correspondence is that, the garden was owned by Major Waugh and he was acknowledged by the Government for having donated the garden. The British resident, Mr. Cole, at Mysore was authorised to maintain the establishment necessary for the proper care of the garden and its expenses be chargeable to the supreme Government. This indicates that the then ruler of Mysore Province, Krishna Raja Wodeyar III had nothing to do with the garden, as it was part and property of British Government.

Later in the year 1838, the supervision of this garden was transferred to Agri-Horticulture Society's of Bangalore branch. There is a annual report, (1839) by William Munro, Secretary of the said branch Society, sent to head office of society at Calcutta, in Lalbagh Library.

In this report, Mr. Munro, had given detailed account of the garden and at every time he had mentioned it as the garden at Bangalore but not as 'Lalbagh'. After having gone through all the documents, and records, a conclusion was drawn that it was not called as Lalbagh earlier. This garden was a fruit jungle earlier to Hyder's rule. During later period of Hyder's rule (1761-82) and during the rule of Tipu (1782-99), many cypress plants were planted systematically. The whole garden was divided in to square plots where rose were planted with Cypress in the back ground. The drawing of Cole brooke mentioned earlier, shows mango trees and cypress trees around the garden. During this period, this garden was supervised by Mohamadan Daroga, named Mohamed Ali, who took keen interest and developed the garden a great deal. This man was succeeded by his son Abdul Khadar as Daroga. Perhaps at this junction (1792) the third Mysore War between Tipu and British took place and ended in seizure of Bangalore by British. There after the garden remained with the Daroga. In the year 1799 final war broke out between Tipu and British in which Tipu was killed and the kingdom was transferred to Wodeyars. Wodeyars did not get the said garden with the state. The Second Daroga, Abdul Khader might have sold the garden to a British Botanist Major Waugh, as in the correspondence en-

sued later between Waugh and Government, the garden has been mentioned as the 'property of Waugh'.

This garden eventually came under the charge of Sir Mark Cubbon (in 1842) the Chief Commissioner of Mysore State, which was a dominion of Maharaja of Mysore. Since Maharaja of Mysore, Krishnaraja Wodeyar III, was superceded in 1831 by British Government. In 1856, Mark Cubbon declared this garden as Botanical garden of Government of Mysore, and there after the garden was improved much on systematic lines under the superintendence of Kew trained persons.

(Compiled by : S. Narayanaswamy
Assistant Horticultural Officer)

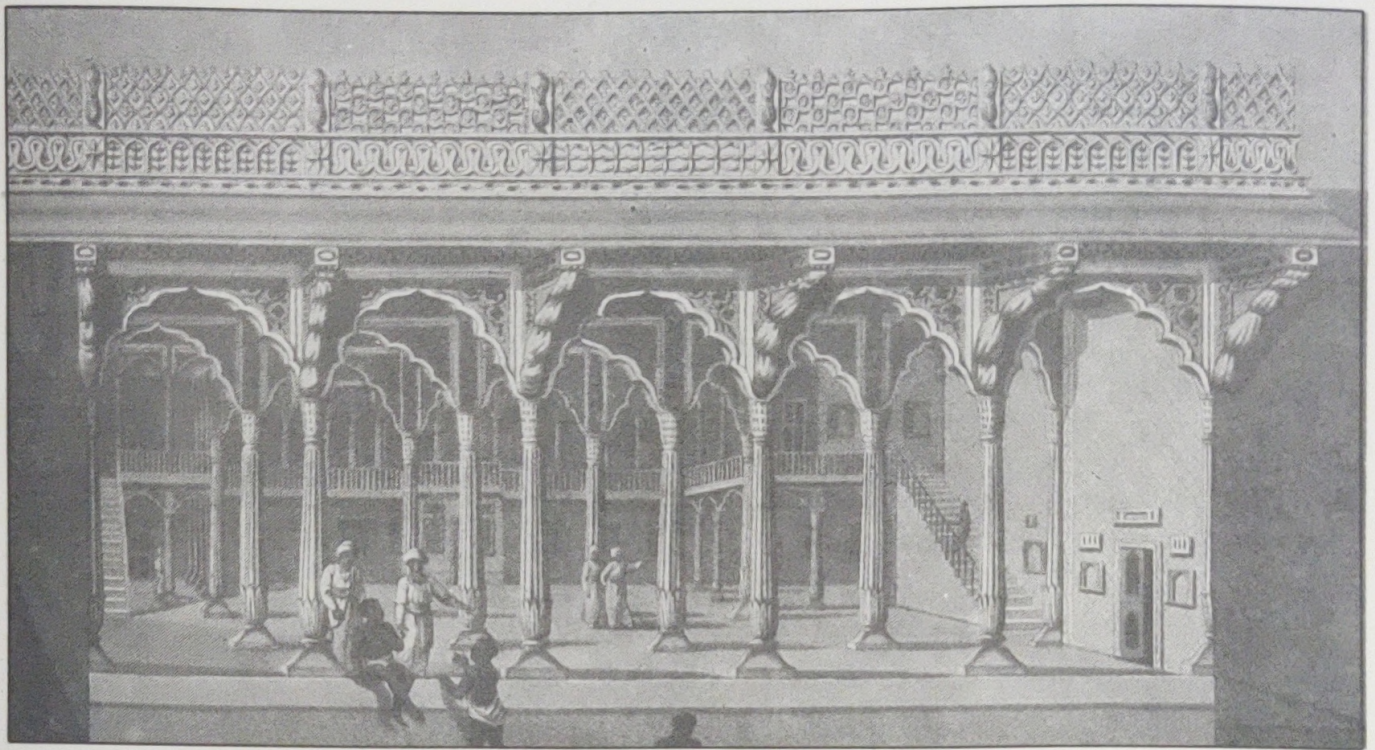
From this time onwards, the public and farmers had the liberty to visit the garden and started calling the garden as 'Lalbagh'.

The reason why they called it 'Lalbagh' was due to the fact that there was a beautiful garden called 'Lalbagh' at Srirangapatna. It was developed by Hyder and Tipu. At present the Gumbaz containing tombs of Hyder and Tipu is situated at the centre of ground which was once a beloved garden 'Lalbagh' of Tipu.

This 'Lalbagh' at Srirangapatna had been mentioned in many records by native as well as British chroniclers. One such record is the novel of Sir Walter Scott and another is History of Mysore by Col-Wilks in 1810. In the latter book it is recorded that prior to fall of Srirangapatna the British cavalry under Col- Floyd encamped at southern end of the island which was part of 'Lalbagh' garden. In this book Wilks mentions that, to accomplish the seize of fort, they (English Cavalry) gathered the material by cutting of the trees in the 'Lalbagh'. He further says that this was an indispensable and reluctant act of British. Whatever may be the view of Wilks, the British had spoiled the beautiful 'Lalbagh' much beloved garden of Tipu and his subjects, for that is the place where Tipu constructed Dariya Doulat, a monument of his victories and the famous Gumbaj in memory of his father.

The beloved garden 'Lalbagh' of Srirangapatna was so popular with native people that they started calling the garden at Bangalore as 'Lalbagh' when the garden became Government Botanic Garden. In official records the garden of Bangalore is referred as 'Lalbagh' only after 1856, from that year onwards people had access to the garden, 'the Lalbagh' of Bangalore and the present garden at Srirangapatna is no more called by its original name 'THE LALBAGH'.

The connected four letters mentioned are reproduced for reference in the following pages.



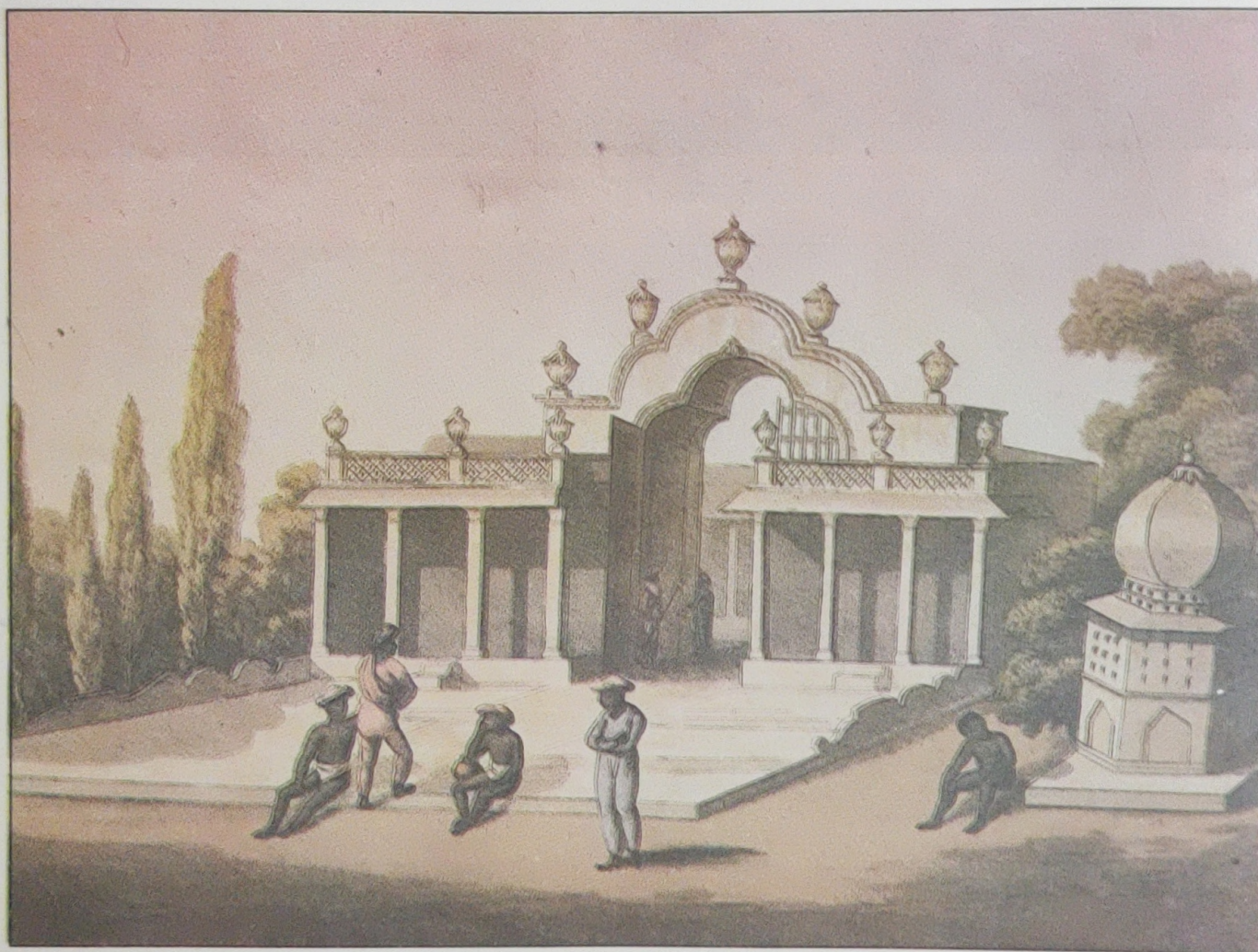
Interior view of Tipu's Palace by James Hunter - 1805



Exterior view of Tipu's Palace by James Hunter - 1805

**DOCUMENTARY LETTERS SHOWING CORRESPONDENCE ON TRANSFERRING
THE GARDEN (LALBAGH) AT BANGALORE FROM PRIVATE AGENCY TO
GOVERNMENT**

Antique letters which are very interesting, exchanged during early part of 19th century between the Superintendent of the Botanic Garden of Calcutta and the Governor General, East India Company, Calcutta, are unearthed from archives. These letters throw light on the ownership of the garden (The Lalbagh), its status and its utility. Strangely enough, the garden was never referred as Lalbagh. Hence, these letters testify the fact that the garden was not called as 'LALBAGH' then. These letters disprove many legends and stories connected with the name. The letters are reproduced here without any change in the matter.



Entrance to Lalbagh at Srirangapatana by James Hunter - 1805

LETTER: (i)

To

C.T. METCALFE, Esq.,

Private Secretary to the Most Noble the Marquis
of Hastings

DEAR SIR,

I obey with the greatest satisfaction the wish which you have done me the honour to express and beg to submit to you the following thoughts which have occurred to me on an attentive perusal and consideration of the documents enclosed in your favour of the 4th instant.

The garden in question at *Bangalore* has been a considerable time known to me from my correspondents both at that and other stations to the south of Ganjam as affording a striking instance of the practicability of bringing the fruits of Europe to complete perfection in this country, under a happy combination of favourable localities of soil and climate when aided by such efforts of zeal, skill and indefatigable perseverance as those, which have distinguished the useful labours of *Major Waugh*. Some recent communications of seeds from thence have further tended to corroborate me in the conviction that the climate of *Mysore* is eminently suited to purposes of Horticulture and for that reason might, with the fairest prospects of ultimate success, be made subservient to a very great desideratum in this part of the world, that of an intermediate nursery or depot for the introduction and acclimatising of the fruit trees of *England*.

I should be trespassing needlessly on your time were I to enter into a detail of the many claims which the art of gardening, more especially that branch commonly called the useful, has of being ranked among those pursuits that are essentially requisite to the comforts and enjoyment of mankind. Not less superfluous would it be to dwell on those points which, in that respect, place India on a level with Europe. The object is equally important to all countries, its attainment equally deserving of encouragement from the Great, the Powerful and Philanthropists in all climates. The munificence of the Hon'ble Company has accordingly provided for an Institution not surpassed by any in riches and splendour, and I venture to affirm, exceeding all others of a similar description both in the extent and operation of its means. For, where does there exist a *Botanic Garden* which like that of *Calcutta* comprises several hundred acres of cultivated ground, boasts of some thousand unknown plants, its sources daily increasing, its liberality extending to all quarters of the globe, not only cheerfully answering, but even anticipating the demands from which thence are perpetually made on its riches? Among the branches of Botany which are comprised within the scope of this great establishment, that of introducing and disseminating foreign fruits maintains a very conspicuous place to which the labours of the successive Superintendents have been directed, from its very commencement, with the most signal benefits to the country. The endeavours however of bringing the fruits of *England* to any degree of perfection here have hitherto been frustrated, on account of the excessive heat and profuse wetness which characterise the climate of Bengal and which have hitherto opposed an insurmountable barrier against every attempt of a direct introduction of those desirable articles of cultivation. To remedy this defect, by inusing gradually the Europe fruit trees to bear the vicissitudes of this country, intermediate depots or auxiliary nurseries become very desirable and for such a purpose the '*garden of Major Waugh*' seems to be in every point of view highly calculated. Its peculiarly fine situation and most flourishing condition, it containing a vast variety already of those very trees which it is so material to introduce into Bengal, the existing opportunity of appropriating it as a branch of this garden, not only with a view to the good of this country, but as eminently suited for promoting the reciprocal communications of useful and ornamental plants from and to *England*: these are considerations which induce me to take the liberty of recommending the proposal of *Major Waugh* to the favourable consideration of the illustrious patron and promoter of all institutions which embrace the welfare and prosperity of the Indian Empire, convinced as I am that, if conducted with such skill and judgement as those manifested by its present owner, it would amply counter-balance the additional expenses incurred by its support and prove highly advantageous to the successful pursuits of Horticulture in India.

I have the honour to be,
Sir,

Your most faithful humble servant,
(Sd.) N. WALLICH,
Superintendent.

BOTANIC GARDEN,
Calcutta
17th April 1819.

Letter (ii)

To

NATHANIEL WALLICH, Esq., M.D.

SIR,

I am directed by the Governor-General in Council to acknowledge the receipt of your letter of the 17th instant, and to enclose, for your information, a copy of a letter which I have been instructed to address to the Chief Secretary to the Government of *Fort St. George*. You are requested to enter into correspondence with *Mr. Cole*, the Resident at *Mysore*, relative to the *Garden at Bangalore*, which will in future be considered as a branch of the establishment under your charge.

I have the honour to be,

Sir,

Your most obedient humble servant,
(Sd.) C.T. METCALFE,
Secretary to Government

POL. DEPARTMENT,
COUNCIL CHAMBER
The 24th April, 1819

Letter (iii)

To

GEORGE STRACHEY, Esq.,

Chief Secretary to the Government of Fort St. George.

SIR,

The *Resident at Mysore* having submitted, for the information of the Governor-General in Council, copies of his Despatch to you, dated the 25th of January last, and of the Memorial of *Major Waugh* to the Right Honourable the Governor in Council of *Fort St. George*, offering his valuable *Garden at Bangalore* to the acceptance of the Government. I have been directed to signify the opinion of His Excellency, that *Major Waugh's Garden* might, in connection with the Honourable Company's Botanical Garden established at this Presidency, be rendered of great public advantage, as an intermediate nursery for introducing and acclimatising, in India, the trees and plants of *Europe* and *China*. The Governor-General in Council, therefore, willingly accepts the liberal and disinterested offer of *Major Waugh* and his Excellency requests the Governor in Council to be pleased to direct the acknowledgements of the Government to be conveyed to that officer, together with the intimation of the acceptance of his *valuable Garden*. The Governor in Council of *Fort St. George* is further requested to authorise the *Resident at Mysore* to maintain the establishment necessary for the proper care of the *Garden*.

The Governor-General in Council is induced, by the obvious advantage of connecting the *garden at Bangalore* with the extensive Botanical Establishment at this Presidency to desire that the former may be considered as a branch of the latter, the persons entrusted with the immediate care of the *garden at Bangalore*, being placed under the general superintendence and control of *Dr. Wallich*, the Superintendent of the Botanical Gardens at this Presidency, and conforming to the instructions with which he may furnish them. The Governor-General in Council requests that the necessary directions for this purpose be addressed to *Mr. Cole*, and that he be desired to enter into correspondence on the subject with *Doctor Wallich*.

As the *garden at Bangalore* will, by this arrangement, be placed entirely under the Botanical Institution at this Presidency, the expenses of maintaining it will of course be chargeable to the Supreme Government.

I have the honour to be,
etc. etc. etc.,
(Sd.) C.T. METCALFE,
Secretary to Government.

POL. DEPARTMENT,
FORT WILLIAM,
24th April 1819

Letter (iv) at the end



Dag Hamerskjöld, Former Secretary General UNO, witnessed Flower Show at Lalbagh in the year 1956

THE GLORY OF LALBAGH AND GLASS HOUSE:

L. Hanumiah
Director of Horticulture

"If India is a garden, Lalbagh is the heart of it" said Marshal Tito when he visited Lalbagh in 1955. Due to the presence of Lalbagh, Bangalore is celebrated as one of the chief horticultural stations in India. This circumstance is due to its geographical position which commands a congenial climate. It is situated at 12° 57' north latitude and 77° 35' east longitude, with an elevation of about 3,000 feet above sea level. The average rainfall is 35 inches per year, spread over a period of 8 - 9 months in the year. The climate for nine months in the year may be described as that of the South England, without frost and fog, but with the generous glow of a tropical sun superadded - Bangalore is "India without its scorching sun and Europe without its snow".

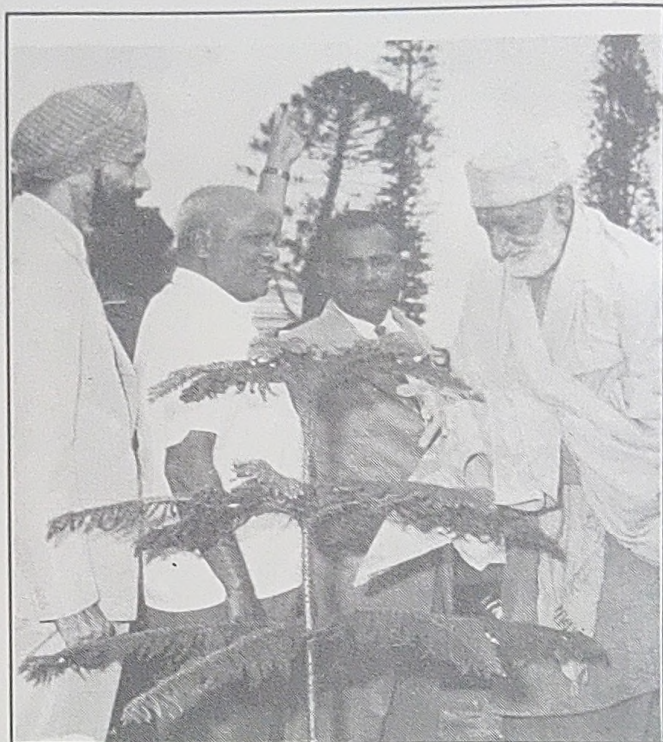
Bangalore, therefore, may be said to occupy a position intermediate between the temperate and torrid zones and many of the plants of the extra-tropical regions flourish equally well with those indigenous to India. Independent of these natural advantages, the mother institute of World Botanical Gardens, Kew, has influenced and helped both by Kew-trained hands and by constantly supplying new plant materials since 1856, the year in which Lalbagh became the State Botanical Garden.

100-Year History

The history, name and fame of Glass House during these 100 years of its existence in the heart of Lalbagh Gardens symbolises and centres round the development of Lalbagh Botanical Garden, growth and development of Horticulture in Karnataka. Lalbagh

has a history of over 200 years; whereas, the Glass house has the history of 100 years. The idea of Glass House emerged in the year 1888 for the main purpose of holding horticultural shows which were being held around the Bandstand in front of Glass House in early years. His Highness Shri Chamaraja Wodeyar, Maharaja of Mysore gave a reception in the Garden to the Prince of Wales. To commemorate the visit of his Royal Highness Albert Victor, the foundation stone to Glass House was laid by him on 30th November 1889. This Glass House was called as Albert Victor Conservatory, which was completed in the year 1890, wherein the summer and winter Horticultural shows are held from that year onwards.

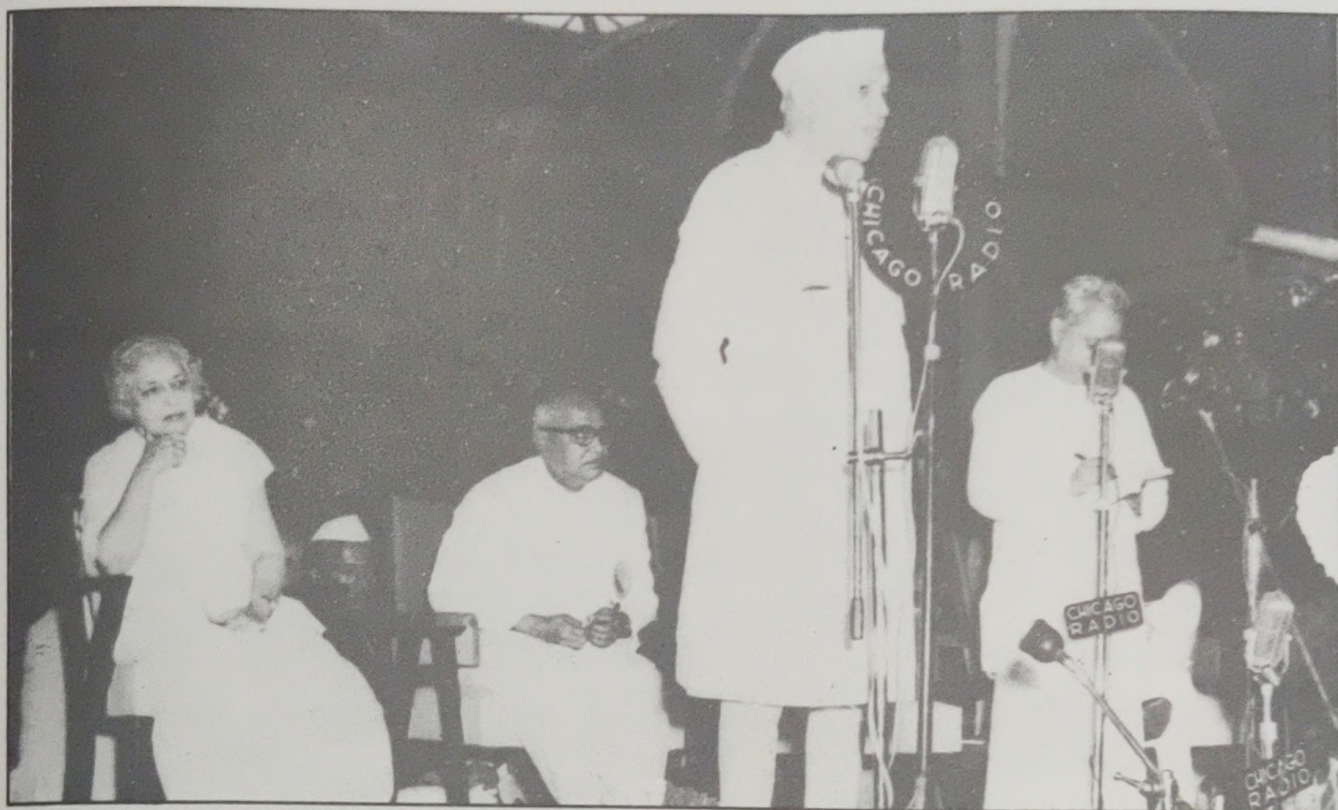
Prior to independence, Glass House was exclusively used to conduct Horticultural shows. The summer and winter horticultural shows conducted prior to independence are now called 'Indian Independence Day' and 'Indian Republic Day' Horticultural Shows after Independence respectively. The Glass House, the feather cap of Lalbagh garden, became the venue for introduction of several botanical species, particularly species of economic importance. It may not be out of place to mention atleast some of the species introduced into Lalbagh for experimental cultivation, ul-



Khan Abdul Gaffar Khan, the Frontier Gandhi, planted a sapling of Araucaria at Lalbagh - 1968



President Sri R. Venkataraman inaugurated Centenary celebrations of Glass House on 16-12-1989



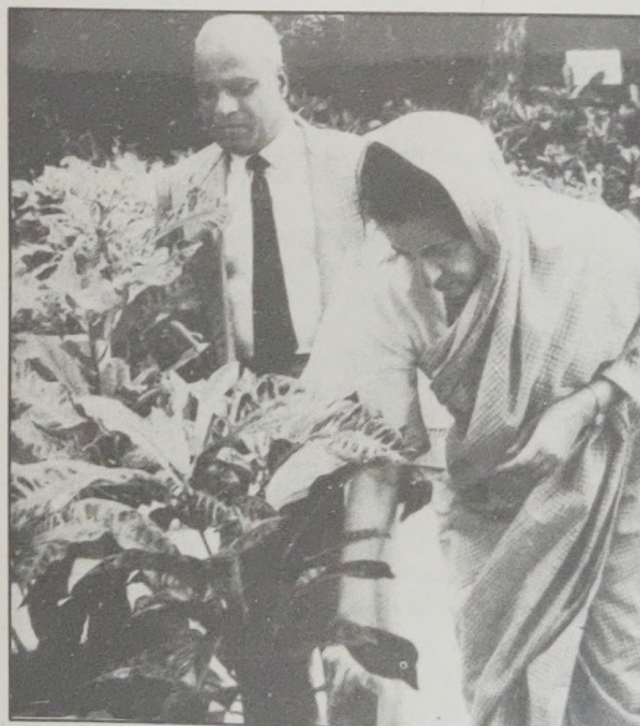
Prime Minister Jawaharlal Nehru addressing AICC session in the Glass house - 1956

timately popularised by exhibiting in the horticultural shows held at Glass House for the benefit of the State from last 100 years. Some of them became commercial crops in the state and country.

Show of Exotic Plants

The plants introduced and popularised in the various Horticultural shows held in the Glass House, to mention, a few are enumerated as follows:- (The years in brackets indicate the introduction of exotic plants for the first time into the garden).

Boehmeria nivea, (1874), *Coffea liberica*, *Helianthus annuus* (1875), *Adansonia digitata* from Calcutta, *Bursaria spinosa* and *Tristania conferta* both from Adelaide, *Clausena wampi* from Ceylon (1876), *Couroupita guianensis*, *Enchylaena luxurius*, *Bambusa vulgaris* from Calcutta (1877), *Prosopis juliflora*, *Pithecellobium saman* from Ceylon, *Trapa bispinosa* from North India (1878), *Mahihot glaziovii* from the Royal Botanic Garden, Calcutta (1879), *Colvillea recemosa* (1880), *Erythroxylum cocoa*, *Barringtonia speciosa* from Ceylon (1881), *Cyphomandra betacea*, *Cola acuminata* (1884), *Artocarpus incisa* (1886), *Castanea vulgaris*, *Hevea spruccana* from Kew, *Carissa*



Prime Minister Smt. Indira Gandhi naming a Croton after her celebrated Father - 1972.



Her Majesty, the Queen of England, Elizabeth II, planted a sapling of *Araucaria* in Lalbagh - 1961

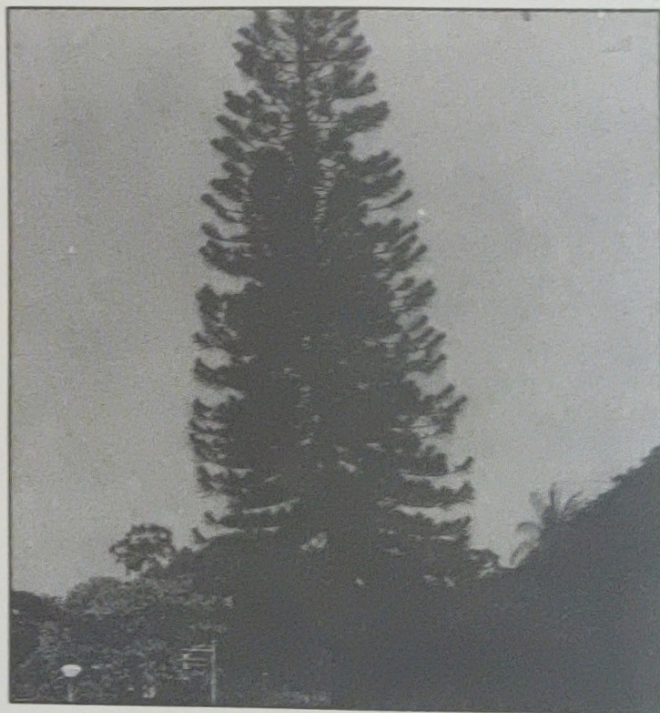
edulis from Kew, *Monstera deliciosa* from Kew, *Myroxylon penniferum* from Kew, *Sechium edule* from Ceylon, *Glycine hispida*, *Landolphia watsoni* from Kew (1887), *Albizzia moluccana* from the Moluccas (1892), *Paspalum notatum* from the Agri-Horticultural Society of India (1900).

To mention some of the economic plants of high value introduced to Lalbagh from within India and abroad during the last century, the performance had been displayed in the Glass House during the shows and popularised to become commercial crops, increasing the economic status of the farming community in the old Mysore state till 1956, the year of re-organisation.

a) Cotton-Bamia cotton, American Upland cotton, Fiji cotton, Egyptian cotton, Nankeen, South Sea Island and Peruvian cotton, were cultivated and reported;

b) Rubber-Ceara rubber, Para rubber, African rubber, India rubber were all tried and multiplied for distribution;

c) Viticulture-Black Hamberg, Gros Colman, Muscat of Alexandria, Black Alicante, Kabul, etc., were all tried and popularised.



The grown up *Araucaria* - planted by the Queen, as seen now

- d) Fruit plants-Apple, Apricot, Peaches, Nectarine, Plums, Litchi have all been tried and popularised;
- e) Groundnuts and potatoes were cultivated and introduced;
- f) Coconuts like Siamese and Negro, Golden Coconut and green coconut were tried and introduced;
- g) Coffee-Liberian and Arabian coffee were cultivated and grafting experiments, Liberian on Arabian stock and Arabian on Liberian stock were tried and popularised;
- h) Fibres- Sisal hemp from Florida and American Agave were cultivated and distributed;
- i) Sericulture- Mulberry introduction from Japan and acclimatization at Lalbagh gave Karnataka a leading position in Sericulture.
- j) Introduction of innumerable medicinal herbs, ornamental, aromatic plants:- Ornamental plants like Hibiscus from Hawai, fruit and vegetables of exotic and indigenous varieties to the state through Lalbagh reached its peak during the stewardship of Dr.M.H.Marigowda, Director of Horticulture during the period from 1951 to 1974.

In addition, innumerable ornamental trees and plants were introduced during the present century both during the pre-as well as post-independence period.

Growth from 1856

The growth and development of Lalbagh centered round the Glass House cannot be ignored without mentioning various stages of development of Lalbagh right from August 1856, from which date 'The Lalbagh' became the State Botanical Garden.

Lalbagh became contemporary garden during the last one hundred years and became parallel to Kew Garden in England and Calcutta Botanical Gardens in West Bengal, Lucknow Botanical Garden in Uttar Pradesh. Since then, the introduction of plants into Lalbagh which maintained an exchange of plant with other Botanical institutions in India and abroad, was organised. A set of fruit plants, viz., Apple, Pear, Vines, Oranges and Lemon were introduced from Ooty in 1856. During 1858-59 several economic plants such as Peaches, Apricot, Plums, Strawberries, Grapes and Figs have been introduced into this garden, in addition to a big collection of seeds and plants from North Africa, Tenneiff, Medevia and the Azores.

To conserve water for the lower part of the garden, open channels were laid out with brickline in 1851. The tank bund was improved and walk line on the bund



Shah of Iran visited Lalbagh - 1955

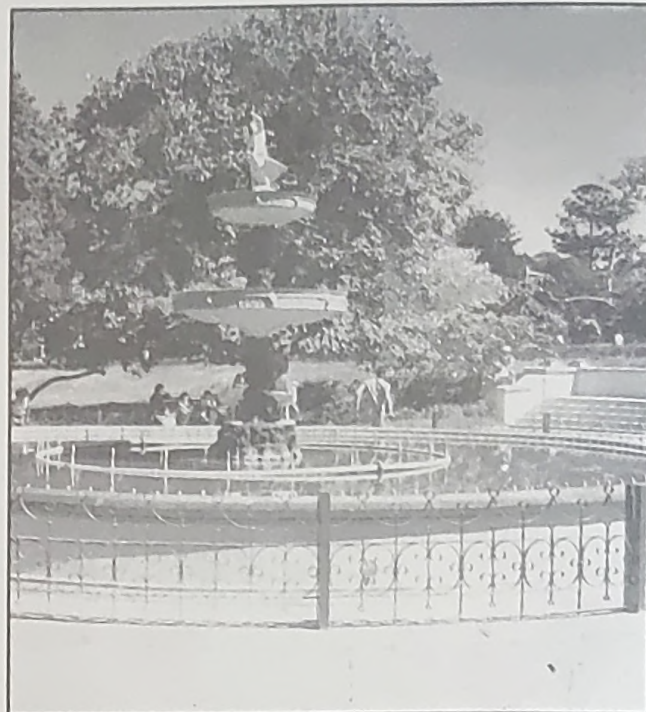
was formed and extended. Grafting of fruit trees was undertaken to make available to growers for encouraging fruit cultivation. A library of horticultural books was started during the year 1859 as a useful and necessary appendage to the garden. In 1889, 30 acres of new ground on the eastern side was added. In 1891, 13 acres of ground including the 'Rock' (Kemp Gowda Tower) were added. In the same year, sufficient land outside the main entrance was acquired for frontage and new and elegant gates were erected. In 1894, extension of the botanical garden was made by bringing the area of the garden, around 100 acres by the close of the 19th century. By 1960, the boundary of the garden was fixed, bringing nearly 240 acres under the ambit of Lalbagh.

Eminent Visitors

The glorious Glass House has a pride of being the venue for honouring dignitaries who have visited the State. In 1919, Gurudev Ravindranath Tagore visited the Lalbagh Glass House. During the year 1955, Nikolai Bulganin, Nikita Krushchev, the Prime Minister and the First Secretary of the Communist Party of the USSR visited Lalbagh and planted two 'Pride of India' trees.

In the same year, Marshall Tito, President of Yugoslavia, the king of Ethiopia, the king of Saudi Arabia, the King and Queen of Iran, Mr. Chou-En-Lai, Premier of China, the Dalai Lama and Panchen Lama of Tibet, Marshal Zhukov, Defence Minister of the USSR, who also visited this garden and Glass House, have carried sweet memories of exquisite beauty of garden, and flowers and plant wealth of Lalbagh. Marshal Tito made a glowing remark "If India is a garden, Lalbagh is the heart of it". A sapling of *Araucaria cookii* was planted by Marshal Zhukov on the lawn to the right of Glass House, by the side of the main road. The visit of our beloved Prime Minister, late Pandit Jawaharlal Nehru to Bangalore used to be generally synchronised with a stroll in Lalbagh Garden everytime.

During 1956, when he visited the garden along with his daughter Smt. Indira Gandhi, he planted a sapling of *Tecoma Argentia* in front of the Glass House which is now profusely flowering. In the same year, late Dag Hamerskjöld, former Secretary General of United Nations, paid a visit to the Garden and Glass House and planted a sapling of *Tecoma argentea*. The Glass House has practically become a national platform to receive, honour and to extend State parties, in the



An artistic fountain in front of the Glass House



Dr. Ho-Chi-Min, President of Vietnam, planted a sapling - 1958

honour of the great sons of India viz. scientists, educationists, and leaders of the many Nations.

The year 1961 will be remembered forever in the annals of glorious history of Lalbagh Glass House. In that year, Her Majesty, the Queen of England, Elizabeth II paid a visit to the Garden and Glass House. In 1962, when Sir M. Visweswariah attained 102 years, he was honoured by celebrating his birth centenary in the Glass House which was inaugurated by the Late Pandit Jawaharlal Nehru, Prime Minister of India. The Late Prime Minister Shri Lal-Bhadur Shastri adorned the platform in the Glass House as an unforgettable Premier of the Nation in July, 1965 when All India Congress Session was held in the Glass House. In the year 1972, Late Prime Minister Smt. Indira Gandhi, seeing the activities of Lalbagh spontaneously pronounced "This is what I am urging my country to produce".

Site of Many Shows

In addition to honouring the dignitaries both from Abroad and within India, several National shows such as first all India Mango Show, First All India Citrus Show, First All India Vegetable Show, First All India Grape Show, All India Apple Show, First All India Banana Show, were held in the Glass House symbolising the importance of Horticultural development in the state during 1960s, 1970s and 1980s. The cultural programmes of International importance such as SAARC Summit was held during November 1986 in the Glass House, on which occasion, the then Prime Minister Sri. Rajiv Gandhi and the Heads of State of other SAARC countries, namely Sri Lanka, Pakistan, Bangladesh, Nepal and Maldives were honoured. In 1987, the Russian Space Technology Exhibition was held in the Glass House, Lalbagh, for the first time.

The birth and growth of glorious Glass House and Lalbagh gardens directly corroborate with the development of ornamental horticulture and economic horticulture in old Mysore state prior to 1956, untill reorganisation of states and then the whole of Karnataka after the reorganisation of states. The vast varied collection of ornamental and horticultural flora, fruits, vegetables, flowers, etc., of Indegenous and exotic type, has brought laurels to the garden as a veritable paradise for those scientists who pursued horticulture and botanical sciences. The glory of which is trumpeted through exhibitions and shows arranged in the Glass House.

Diamond Pendant!

It is in the fitness of things to mention that the Glass House through its exhibitions has educated the public at large (by varied species introduced into Lalbagh). Lalbagh has become the centre of horticultural education during the century by introducing "Diploma in Horticulture" in 1920, and a certificate course in 1958 in addition to conducting free Sunday Horticulture Course. It is pertinent to note that His Excellency, the President of India, Shri R. Venkataraman remarked on the occasion of the Centenary Celebrations of Glass House on 16.12.1989 that "In the necklace of Bangalore parks, Lalbagh is the pendant. And set at the heart of this pendant is a diamond in the form of the Glass House". He declared that it was a great joy for him to inaugurate the function.

The torch light of Horticultural activities which was lit to blaze at this garden and Glass House of Lalbagh centuries ago, is now spreading light of knowledge for the Horticultural science in the State as well as in India.



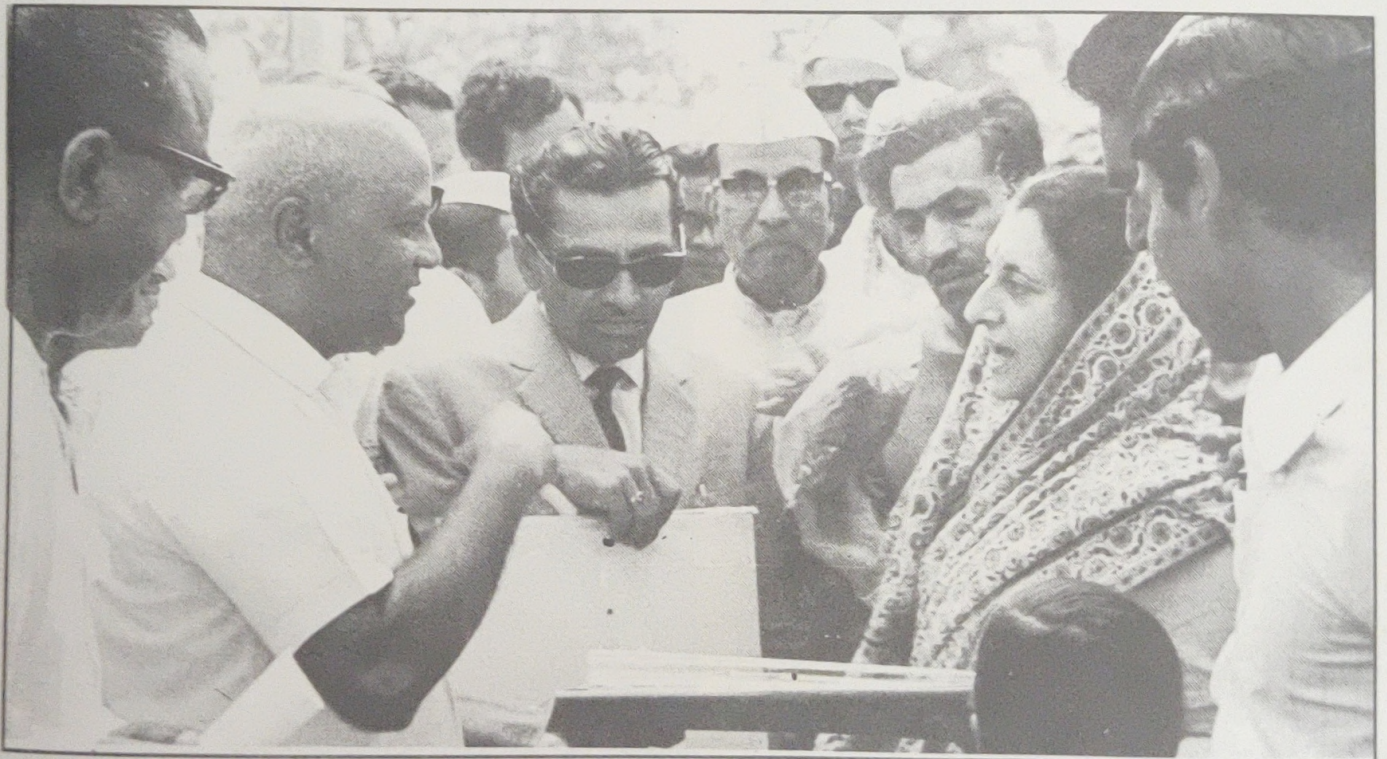
His Majesty, King Birendra of Nepal in Lalbagh



Dr. Zakir Hussain, President of India, with Dr. M.H. Mari Gowda, the then Director of Horticulture, in Lalbagh.



Princess of Afghanistan at Lalbagh - 1972



Smt. Indira Gandhi at Lalbagh - 1973

ARTISTIC STRUCTURES IN LALBAGH

S. Narayana Swamy
Asst. Horticultural Officer

The origin and history of Lalbagh goes back to 18th century. But there are structures in Lalbagh which date back to 16th century, and also there are some structures of artistic-importance constructed during the last Century. The oldest among these is the "**Kempegowda tower**" It is about four hundred and fifty years old constructed by the celebrated Kempegowda, ruler of Yelahanka Nad and founder of Bangalore city. He constructed four such towers at four cardinal points out side the town. He predicted that the town would extend up to these limits set by him. Now the city has grown far beyond these limits. The original shape of the Kempegowda tower was not as it looks now. Earlier it was plain with four pillars supporting the upper storey where a watchman could sit and



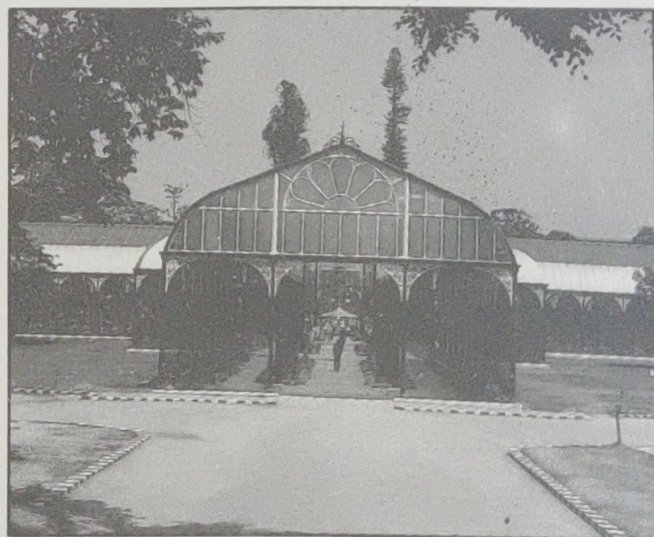
Kempegowda Tower

watch the surroundings. It also had an ornamental pot like dome. The tower was altered during the tenure of Sri Kengal Hanumanthaiah, Chief Minister of Mysore State during 1952- 56. The alteration of the tower was done with an idea of giving better look and to make it visible from another end of double road (K.H. Road) of about a mile distance. Now the tower looks more like a hindu temple tower as it has motifs and relief figures of Hindu mythology over the tower. The remodelling was done without altering the four supporting pillars and base of the tower. One can have a panoramic view of Lalbagh and enjoy good breeze from gardens of Lalbagh, while standing beneath the tower.

Lalbagh Glass House

The construction of the present Glass House was conceived in the year 1888 by the then Superintendent of Lalbagh, J.Cameron. He proposed the construction of glass house for the sole purpose of holding horticultural shows as a conservatory. The proposal was placed before the Government of Maharaja of Mysore. His Highness Sri Chamaraja Wodeyar who sanctioned the proposal in the year 1889.

The design and architecture of this building was prepared by MacFarlane and Company, Glasgow, England and the same was approved. The construction of the magnificent building was also entrusted to M/s MacFarlane and Company. The supervision of the construction was entrusted to Mr. Scaldwell who was Executive Engineer in the Public Works Department.



The Glass House

Originally there was a plan to accommodate office room, library and herbarium in one of the wings of the Glass House, later it was decided to have only the exhibition main hall with side wings. The Prince of Wales, his Royal Highness, Albert Victor, laid the foundation of the Glass House on 30th November 1889, who visited India as a guest. The construction was completed in the year 1890. It was named after him as 'Albert Victor Conservatory'.

The Glass House is in the form of 'cross' constructed on the model of Crystal Palace of England. It has a main hall measuring 160x80 ft, two wings at right angle to the hall measuring 60x40 ft, each and basement with a height of 3 ft. The whole structure is fabricated out of iron and glass. It is a handsome edifice, looks elegant with terrace gardens in the front and green lawns at either side in the form of crescent shape. A row of champaka trees have been planted around the Glass House excepting the front in the form of crescent shape. At a distance of 60 ft. further a row of monkey puzzle trees (*Araucaria bidwillii*) was planted. Now these trees are in their prime age providing good shade to the walkers and lend aesthetic look to the surroundings of glass house. At the turn of this century, two rows of pencil cedars (*Juniperus procera*) were planted on either side of the path leading from one end of the crescent promenade to another within champaka and monkey puzzle rows. Now, these pencil cedars provide profuse shade and cool breeze. The garden laid out around the Glass House is in harmony with the bandstand garden and terrace garden in front of the Glass House. At the time this ornamental building was completed, it was considered as the finest building in the new style in these parts. It was taken as fitting receptacle where flora and fauna can display their best. In the beginning, all the sides (freezes) were fitted with teak lattice work above the basement which were draped with creepers in order to provide shelter to the plants inside and protect them from the scorching sun and the blowing winds.

Around the year 1935, when Rao Bahadur H.C. Javaraya was Superintendent, His Highness Sri Krishnaraja Wodeyar, Maharaja of Mysore sanctioned the construction of rear wing to the east of the main hall of the Glass House. This wing is built purely out of indigenous material from Mysore Iron Works, Bhadravathy.

This Glass House has four entrances on all the four directions, front and rear entrances have prominent roads, terrace gardens with artistic flight of steps, lamp posts, paraphets and trees such as elegant *Araucarias*, *Pride of India*, *Tecoma argentea*, at either

side. The gravelled path from main entrance leads up to the topiary garden at a distance with band stand and artistic fountain in the middle. The band stand and oval garden synchronise with the Glass House. The metalled path runs from rear entrance to the circle at the foot of hillock. The metalled road passing through the portico of the main entrance starts from Lalbagh main gate and meets another road linking the remaining three gates of Lalbagh. Thus, the Glass House is linked with all main leading roads and gates of Lalbagh which make it a *SANCTUM SANCTORUM* Lalbagh.

Two Horticultural shows, one during Independence Day week and another during Republic Day week are conducted in the Glass House every year. During the flower shows lakhs of people visit Lalbagh and would never miss the flower shows in Glass House. Occasionally, State functions, banquets, scientific exhibitions, cultural events were also held in the Glass House.

The year 1989 marks the hundredth year of the birth of Glass House. Hence, the year 1989-90 is the centenary year of Glass House. The celebrations were held on Dec. 16, 1989 on a grand scale to make this a great event in the history of Glass House as well as Lalbagh.

Band Stand:

It is circular wooden structure with artistic elevated roof supported by wooden pillars which are fixed to a granite platform. The band stand is located almost in the centre of Lalbagh gardens, and it is surrounded by lush green lawns encircled by parapet walls. The garden laid out around the band stand is in form of terrace. Panoramic views of Glass House towards east



The Band Stand

and topiary garden towards west can be had from Band stand.

Perhaps many do not know that the Band stand has completed hundred years of its existence in Lalbagh. Its construction was contemplated by Mr. William New, Superintendent of Lalbagh during 1858-64, but it is evident from records that it was constructed prior to 1870. Mr. Cameron, Superintendent of Lalbagh between 1874-1908, recorded in this report that the Band stand was repaired, the granite platform was added, and the wooden roof improved. He also recorded that flowershows were conducted annually in the Band stand prior to construction of conservatory (glass house) in 1890. It is called Band stand, because military band used to be played in this structure on weekend holidays since its construction. Lateron, this military band gave way to the orchestra as it was becoming more popular. Till recently, upto 1976, the orchestra used to be arranged in the Band stand on week end holidays.

Even to this day, the Band stand is one of the most handsome of all the structures, barring Glass House in Lalbagh.

Horticultural Lecture Hall:

It is a tile roofed tiny building located at one of the shade gardens surrounding the Statue. The building is of unique style, is having a mini verandah in front and a hall inside which is spacious enough to accommodate about fifty persons. Its northern facade is decorated with mortar display of State symbol of erstwhile Mysore Royal Government. It must have been constructed around the year 1860, as the tiles of roof are scribed to have been manufactured in the same year.



Lecture Hall

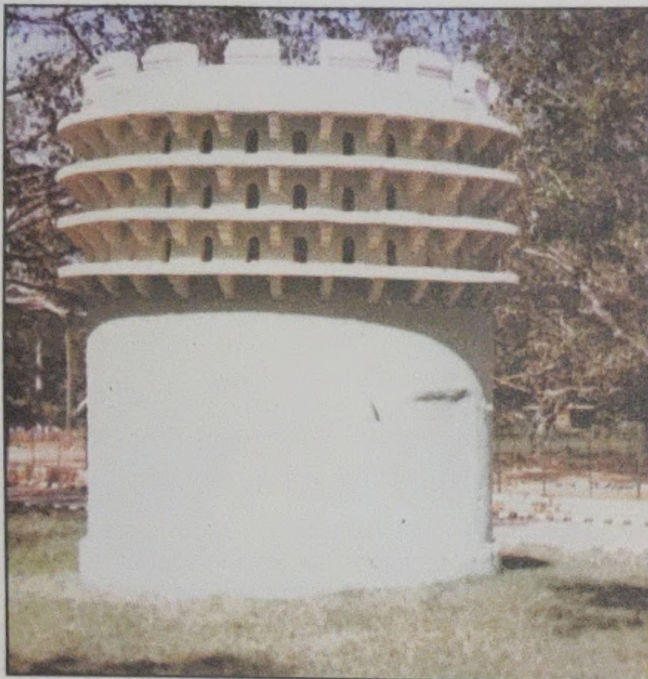


Lalbagh House

It is called lecture hall, since lectures on horticulture used to be given in this building to the students enrolled for diploma in Horticulture during early part of this century. It is presumed, the building was constructed for the same purpose. After abolition of the diploma course in Horticulture, lectures on Horticulture were arranged in the building on Sundays. Later on the Government have sanctioned the Mali (Gardeners) training school at Lalbagh as well as at other important places in the state, thereby its use as lecture hall became limited. Finally, when building and class rooms were raised at south east end of Lalbagh for a Mali Training School, the lecture hall lost its past glory of having been the Alma Mater for many students. Attempts were made to start a canteen for staff of Lalbagh during early part of present decade. Somehow it was not favoured to be canteen, and remained as centre for garden workers to give their attendance. It stands there as a relic of its past grandeur of having been a lecture hall.

Lalbagh House:

It is an elegant cottage with spacious halls, suites, drawing room, kitchen, store room, and handsome portico. It served as dwelling house for the Superintendent of Garden for more than a century. Till recently, Director of Horticulture was privileged to dwell in the cottage. During the year 1988, this magnificent cottage was renovated and as per the Government decision Lalbagh library was shifted to this building. It is named after Dr. M.H.Marigowda, Ex-Director of Horticulture, by the then Chief Minister of Karnataka. Now, it is called "Dr. M.H.Marigowda National Horticultural Library". The library in this building is being used by departmental staff and officers of allied institu-



Pigeon House

tions. Interested public may also visit library for study of horticulture.

The origin of the building is traced back to early part of last century. In the year 1839. When the garden was managed by the Agri. Horticultural Society, its Secretary Mr. William Munro reported to head office that heavy expenses were caused by constructing seed house and dwelling house for the Superintendent of the Garden. Again it was recorded in subsequent reports of 1856 that an amount of Rs. 2000/- was spent for the cottage. Mr. Cameron in his report of 1890 recorded that the dwelling cottage was extended and improved with floor tiles. All these records give clue that the cottage was constructed in 1839 and periodically extended and improved to the stage that it is now. It has completed its purposeful existence of one and a half century.

Pigeon House:

It is a tiny, cylindrical shaped structure, built in the last century. It is a dove cot otherwise called as pigeon house. It has a circular room with a height of about fifteen feet and has artistic holes round the wall towards top. The holes contain enough space in each for a pair of pigeons. It was constructed in the year 1893, when Mr. Cameron was the Superintendent of Lalbagh. It was his innovative idea to give enough freedom to the pigeons kept in the cages earlier, and also to allow them to find their own food. The structure is in the

form of turret and it offers accommodation for about hundred pairs of pigeons as there are so many holes in rows one above the other. The space within the structure is sufficient for a watchman to dwell-in. The room is fitted with a door having facilities for locking.

Statue of Chamaraja Wodeyar

The most artistic and elegant structure in Lalbagh is the statue of His Highness Chamaraja Wodeyar, the then Maharaja of Mysore (1881- 1894). The statue was originally erected at Curzon Park in Mysore City. After having secured better one for that place, it was decided to shift this statue to Bangalore city. In the year 1908, when Krumbiegal was Superintendent of Lalbagh, the statue was shifted to Bangalore city and installed at one of the better portions of Lalbagh. It is a metallic, equestrian statue, painted with black colour. The statue is installed on marble pedestal of about ten feet height. The pedestal has main dais for setting the main statue and also has four mini dais in four angular directions, on each of them was a mini statuette earlier. Now, they are not there. It is learnt that they have been stolen. The east and west faces of



Statue of Chamaraja Wodeyar

the pedestal have alcoves with inner conclave surface painted with metallic gold colour. In both the alcoves there are medium sized metallic statue painted in the black. Each of these two statuettes give symbolic meaning as one is of a blind folded person holding balance in the hand, other one is of a lady exposing the bosom.

This section of Lalbagh is called 'Statue Garden' having an oval layout. Throughout the year there will be blooms in this garden as different flowering trees are planted all along the periphery of oval garden.

Directorate Building

It is a magnanimous structure with artistic features on effective architectural style. The main entrance hall is quite spacious, and it has artistic wide windows and doors. The entire hall is covered with a high pyramidal roof of zinc sheets below and tiles above. The hall is well ventilated with two windows to front and four windows to back. The roof is surmounted by a dome. The dome allows luxuriant sunlight into the hall. On either side of the main hall, there is another hall which is also quite spacious and well ventilated. Each of the adjoining halls has a room adjacent to it and also has door towards front side and to the room. Thus, the whole structure has three halls and two rooms.

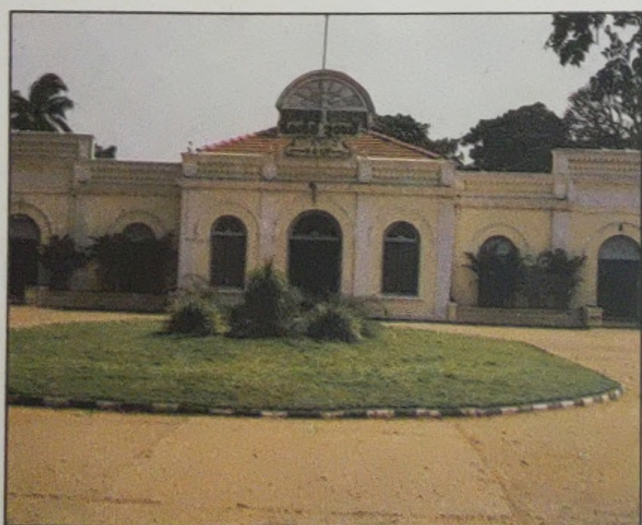
The main entrance hall is divided into two portions by wooden (screen) partition. The front portion houses reception section and the back portion is used as mini meeting hall. The halls at either sides are being used as office chambers by Directorate staff. The corner room to the right of the building is used as office chamber by the Director of Horticulture and the room to the

left of the building is used as office chamber by Joint Director of Administration.

The history of this structure goes back to the early decades of the present century. This building was constructed in 1920 when Mr. Krumbiegel was the Director of Horticulture. Mr. Krumbiegel proposed to the government for construction of the building with intention to start Horticultural Institute (college) in it. He planned to make accommodation in the building for Library, Bureau of Economic Botany, Herbarium, Museums of Natural History, Laboratory and Lecture (class) room. An extract from the report of Krumbiegel on the proposed building and the Horticulture Institute is reproduced here. "The Institute will be situated on sloping ground so that the front elevation has high plinth, terrace is thus located between the projecting wings is high enough to provide below for store work rooms, for all the sections, thus saving cost of separate building besides being more convenient. I attach a rough sketch of the ground plan to show general arrangement of rooms. I would have liked to provide in place of entrance hall really a large public lecture hall, but refrain on account of expenses, perhaps a generous patron of Horticulture will come forward with Rs. 10,000/- to include this desirable feature before we start the building".

The proposal of Mr. Krumbiegel was partly approved by Government to the extent of the building as it stands today. Mr. Krumbiegel had to satisfy himself with just a building and his dream of starting a Horticultural College remained a dream in his life time.

This building is in same shape as it was when constructed except for the roof. Originally, the roof was wholly of glass. In the year 1927, the roof was removed and re-roofed with zinc sheets below and tiles above. This alteration was done to provide office accommodation for the consulting architect in addition to his original duties as Director of Horticulture. Later, the building accommodated both his offices. Hence, the building may befittingly called as brain child of Mr. Krumbiegel. Even to this day there is no other brick building in Lalbagh comparable to it in artistic features, architectural style, ornamentation, accommodation and more so in strength. The vast frontage with an elevated lawn in the centre and greenery at all sides lend beauty and serenity to the building. From a distance, the view is panoramic and grand.



Directorate Building



Lalbagh Museum

Lalbagh West Gate Guard Room

It is an artistic, tiny structure of granite with high ornamentation and architectural styles. It is in shape of lantern with glass windows and ventilators at all the directions. It is situated between the two iron gates opening towards the Basavanagudi extension to the western side of Lalbagh. Hence, the gate is called the Basavanagudi gate or Lalbagh west gate. During night times when the electric bulb in the lodge is lit the whole structure appears like lantern from a distance and its lantern effect is visible from all the directions. It is a guard room mainly meant for a watch-man, who could sit inside and watch the surroundings vigilantly, as he could peep in all the directions through the glass windows.

Perhaps, many of the present generation people do not know that this structure is a transplant. Earlier, it stood at the entrance of Dewan P.N. Krishnamurthy's Bungalow (Present Post & Telegraph building lies behind International Hotel by the side of the Race Course road). Way back in 1940's, when the area around the P.N. Krishnamurthy's Bungalow changed hands, and a part of it was acquired by government - the compound wall and the guard room at the main entrance was ordered to be dismantled. Fortunately, the then Dewan Sir Mirza Ismail and the then Director of Horticulture Sri H.C. Javaraya went round the area to inspect the dismantling work. Sri Javaraya was attracted by the ornamental granite guard room and it struck to his mind an idea to save this beautiful structure. He spontaneously requested Sir. Mirza Ismail to permit him to take up dismantling work of the guard room. Mirza Ismail permitted Javaraya to do so not knowing the idea behind it. Javaraya did not give any clue about the transfer of the structure to Lalbagh. He

silently engaged skilled workers for dismantling the structure, before dismantling, each stone of it was numbered from top to bottom. These numbered stones of the structure were carefully removed and transferred to the Lalbagh. For erecting the guard room at Lalbagh, a suitable location at the western side was selected. The stones of the Gate Lodge were refabricated at the selected site which is very close to the Basavanagudi extension. It took about two months for erecting the lodge, at a cost of Rs.5,250/-. The surrounding area was beautified with lawns newly laid out. After completion of the whole process of transplanting and beautification, Sri Javaraya invited Dewan Sir Mirza Ismail to see the marvellous feat. Sir Mirza was overjoyed and appreciated Javaraya for his efforts and skill in conserving the beautiful structure, which was at the verge of demolition. But for the zeal and strenuous work of Javaraya, this beautiful and lovely 'masterpiece' would have been out of sight of people of Bangalore as well as that of many visitors to Lalbagh.

Lalbagh Museum

It is an elegant structure with artistic features, situated at north-east corner of Lalbagh in the middle of the road leading from the head office towards Lalbagh rock. This structure was once a museum building. It is 'cottage like' building and has main hall with corresponding parallel antechambers at each side. Two spacious rooms at either side have projected windows, antechambers and separate passages. The building is symmetrical in form, design and shape and has elevated tile roof, which affords enough light and ventilation. Perhaps, the hall with high walls was used to exhibit botanical specimens. The building faces west and from its entrance a straight road of a kilometer length runs up to the Directorate building. This road encircles the building, and making it carefree with lawns at either side and two row of mango trees at either side of the road in the front.

Lalbagh Cottage

It is an artistic, tile roofed, spacious, handsome structure. The elevated verandah has wooden lattice screen at either end with a span of about eight feet adds beauty and grace to the building. The interiors are well ventilated with wide open projected windows, which have both wooden slit panels as well as glass panels. The building has a rectangular shaped inner court yard.

Originally built in the year 1893 for the Curator of the Lalbagh gardens, it is situated at north-east corner of Lalbagh. It has two office chambers in the front por-

tion. A main passage between these office rooms leads to the inner court yard and compartments. At present some offices such as statistical unit, and record section, are housed in the building.

Lalbagh Main Entrance Gates (Cameron Gate)

The main entrance is situated at northern side of Lalbagh near the western wall.

The main entrance was designed in the year 1891, when Mr. Cameron was Superintendent of Lalbagh. The gates were erected in the same year. For some years, the entrance was called *Cameron gate*.

The main entrance consists of three gates side by side and railings at either side running about fifty feet length terminating at the gate lodges and further after the gate lodges the railings run up to a point about 20 feet beyond gate lodges. These lengthy railings are erected with an idea to present a glimpse of Lalbagh to the by passers in the road. The whole structure is made out of wrought iron, manufactured at the famous MacFarlane and Company, Glasgow, London. The gates are very elegant, artistic, and are quite strong. The gates as well as railings have spikes at top which endanger men or animals trying to jump over into Lalbagh. The entire structure is in crescent shape with vast frontage. All the gates are hinged to strong, chiseled granite columns. The main gate is mainly meant for entry of vehicles and the other two gates at either side are for exit of vehicles.

On entering the garden through the main entrance, there is a wide open ground from which three main roads lead in to the garden. The centre one leads to the Statue Garden and it is meant for only pedestrians. The left gate leads to the glass house and also links other important roads at a distance. The right gate leads to the west gate of Lalbagh and also links the other roads and gravel paths.

The main entrance of Lalbagh is very important and significant. All the dignitaries enter the Lalbagh gardens through the main entrance. The entrance has a permanent welcome banner at a little height over the main gate. An hymn given to Lalbagh by national poet, K.V. Puttappa, is superscribed on the banner. It reads "This garden is the abode of God". As the letters are artistically fabricated out of glass neon bulb, at night times the hymn of the poet strikes the eyes of every visitor.

Deer Paddock:

It consists of vast ground enclosed by iron mesh. The deers of Lalbagh could walk, jump and gallop in their area as there is no menace of other animals or human beings.

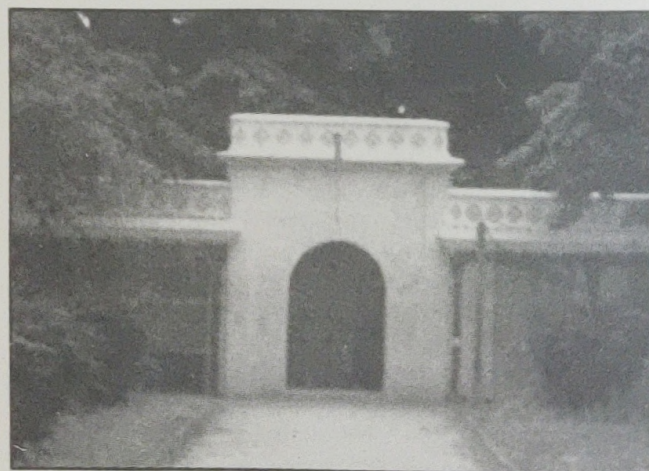
At north west corner of this ground, there is a simple, tile roofed, elevated, free standing structure, which offers shelter to the deers during sunny hours and rainy season.

Aquarium building:

It is situated in the shade garden located between statue garden and terrace garden. It is a circular building and has four entrances, one in each direction. There is a running gallery round the building at its exterior walls and also in its interior walls. The exterior gallery housed aviary earlier. Now the aviary is closed down. Aquarium is housed in interior galleries. The Aquarium is being maintained by the Department of Fisheries.



Deer Paddock



Aquarium Building

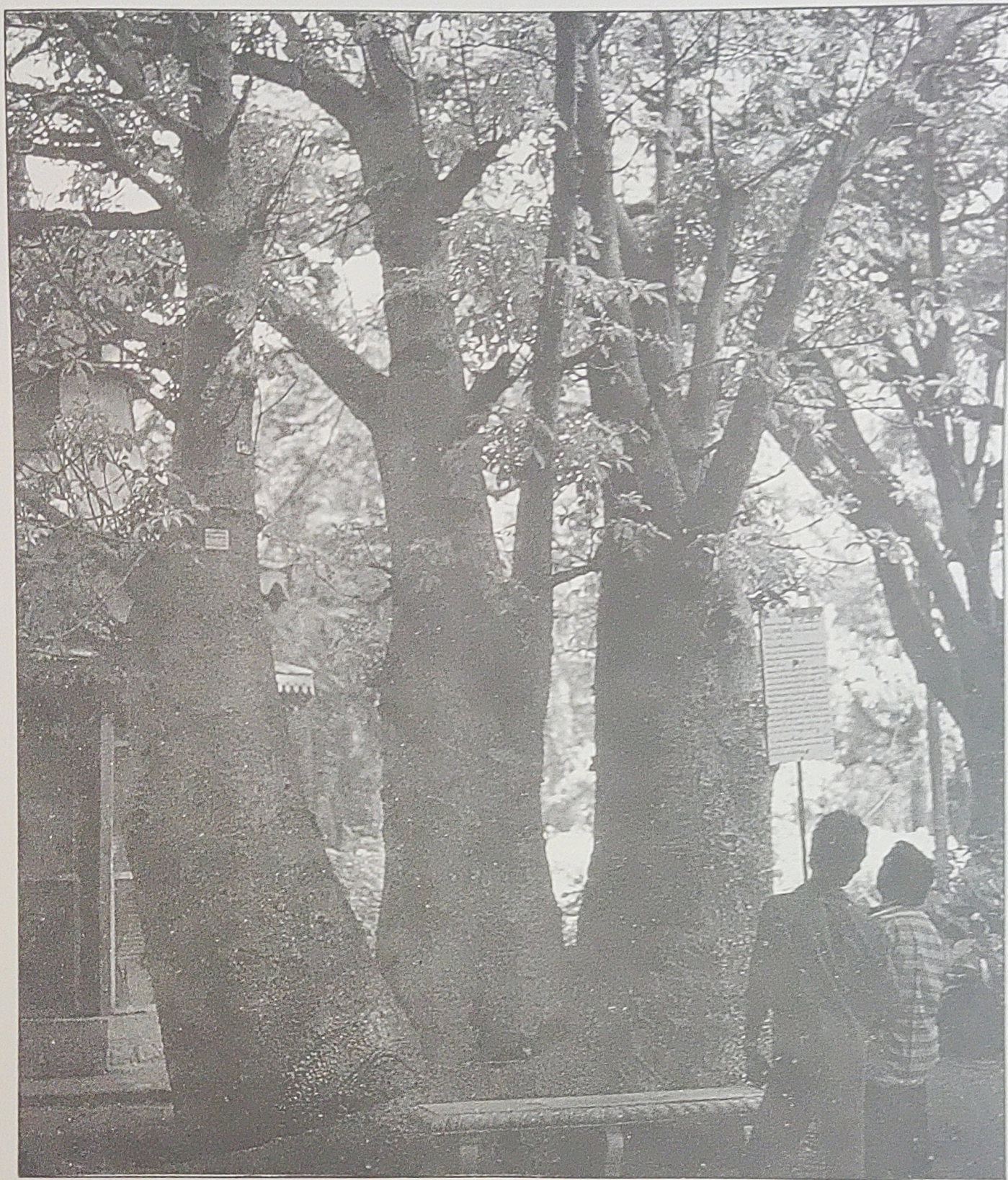
LALBAGH - THE GARDEN PARADISE

Dr. S.V. Hittalmani,
Joint Director of Horticulture,
DLDB, Bangalore.

- Memorable Plant Introductions into Lalbagh during 19th and early 20th Centuries.
- Lalbagh Abounding with Land Marks.
- The Astounding Fruit and Nut Wealth of Lalbagh.
- The Fragrance that Emanates from Lalbagh.
- The 'Heaven' filled with Sacred Plants.
- The Mother Inspirator for Parks, Gardens, Farms and Nurseries.
- The Vital Lung Space of Bangalore.



Entrance to the 'Garden of Paradise'



Baobob Tree (*Adansonia digitata*) at Lalbagh

MEMORABLE PLANT INTRODUCTIONS INTO LALBAGH DURING 19TH AND EARLY 20TH CENTURIES :

The Lalbagh botanical garden at Bangalore has attained both national and international reputation, mainly due to the fact that it is encompassing a vast diversity of rare and useful flora. Behind this credit is the story of many dedicated people, who strived hard to enrich the Lalbagh botanical garden with the plant wealth from all corners of the world and made it unparalleled in the entire country. Here is a brief account of how these people of pride played their pivotal role in carrying out the plant introduction, and thereby elevated the fame and name of the Lalbagh botanical garden.

Earliest Introductions

It is on record that the present day Lalbagh was a small fruit orchard during the times of Hyder Ali, wherein the fruits such as mango, banana, pomegranate, fig, etc., were under cultivation. Later,

his son, Tipu Sultan, expanded this garden by bringing more area under cultivation. He is said to have introduced the exotic plants such as Cypress, Thuja, Junipers, Grapes, Guava, Raspberry, Strawberry, etc., somewhere around 1780. Since he had diplomatic contacts with France, it was easy for him to get most of the exotic European flora. During his times, this garden was a royal resort and was closed for public visits. However, the prosperous royal garden started declining from 1785, because of the incessant wars of Tipu with English and his other native enemies. When Tipu lost Bangalore to British in 1794, most of the exotic flora of this garden was totally extinct, except the native plants such as mango, tamarind, banyan and others. This is evident in the paintings of Lalbagh done by R.H.Colebrooke, in the year 1793, wherein we can hardly see any exotic plants such as Cypress, Cupressus and Thujas. But, when this garden came into the possession of the British Botanist, (1799), Major



A Lovely Scene at Lalbagh after Pre-Monsoon Showers.



A Rare Confluence of Indigenous and Exotic Plants.

Waugh, who started immediately introducing exotic plants and because of his efforts, one could see profuse numbers of Cypress, Thujas, etc. The Cypress plants were so abundant that the Lalbagh was initially to be referred as the "Cypress garden", by the British. This is clearly evident in one of the paintings of Lalbagh by Colonel James Hunter, dated 1805, wherein one can easily spot out well grown, stately Cypress and dome shaped Thujas. Hence, we can authentically say that Cypress and Thuja were the earliest exotic introductions into the Lalbagh botanical garden.

Early 19th Century Introductions

During the period between 1799 and 1819, the Lalbagh garden was under the supervision of Major Waugh. He took keen interest in developing Lalbagh garden on the lines of European gardens. The introduction of temperate European tree flora continued during the early 19th century. During this period, Junipers, Oaks, Elms, Cedars, various types of Cypress, Pines, Roses, Magnolias, Chrysanthemums, Honey Suckles and many other herbs, shrubs, trees and climbers were introduced into Lalbagh.

In the year 1819, Major Waugh gifted the Lalbagh garden to the Governor General of the East India Company in India, Warren Hastings; who in turn appointed Dr. Wallich, Superintendent of Royal Botanical Garden, Calcutta, as the incharge Deputy Superintendent of the Lalbagh botanical gardens. This arrangement continued till 1831.

During the year 1831, affairs of the Lalbagh gardens were directly put under the supervision of Sir Mark Cubbon, the Chief Commissioner of the native state of Mysore. Sir Mark Cubbon eventually gave the maintenance of Lalbagh to the Bangalore branch of the Agri- Horticultural Society of Calcutta, in the year 1839. The Society looked after the garden until 1842. During this period also, quite a lot of native and exotic flora were introduced into Lalbagh.

There is also an obscure record that apple was introduced into Lalbagh as early as in the year 1820, by Hon'ble Sir Arthur Hope, who was resident of Mysore between 1812 and 1827. It is said that he was very much interested in fruit culture and he got some seedlings of apple from John Sullivan, founder of Ooty and the introducer of apple plants into Nilgiris (1808). When Sir Arthur Hope introduced apples into Lalbagh, he was perhaps unaware of the forthcoming,

prosperous apple cultivation in the vicinity of Bangalore, that lasted for over one century; of course, later it became totally extinct.

Mid and Late 19th Century Introductions

The developmental activities of Lalbagh garden were accelerated from 1856 onwards, when Dr. Cleghorn, the Chief Conservator of Forests of South India, took over the responsibility of its upkeep, and development. He laid a firm foundation to the Lalbagh for its development on truly scientific and methodical lines. The plant introduction activities received unprecedented momentum in the year 1858, when Mr. William New was appointed as the Superintendent of Lalbagh Botanical Gardens. His appointment was directly from the Director of the Royal Botanical Gardens at Kew, London. This dexterous officer developed Lalbagh both in terms of volume as well as quality. A number of economically important plants were introduced by Mr. William New, and the notable among them are as follows: Cinchona, Coffee, Tea, Pineapple, Plums, Peaches, Sapota, Guava, Grapes, Chestnuts, Pecan-nuts, Hickory nuts, Macadamia nuts, etc., and the flowering plants such as Azaleas, Rhododendrons, Camellias, Magnolias, Bougainvilleas, Larkspurs,

Amaryllis, Dahlia, Crocus, etc., and tree species such as Eucalyptus, Casuarina, Araucaria, Silver Oaks, etc., were introduced between 1858 and 1863. William New also added a number of useful reference books to the Lalbagh library. In the year 1861, William New published a comprehensive catalogue of all the plants that were growing at Lalbagh. He retired from service in the year 1863. Thereafter, Mr. A. Black, took over the charge of the Lalbagh botanical garden, in the year 1864. He too continued to introduce many native and exotic flora into Lalbagh. He continued his service until 1874.

The "Golden Era" of Plant Introductions

In the year 1874, John Cameron was appointed as the Superintendent of Lalbagh Botanical Garden. His appointment brought blessings to the garden, as he did not leave any stone unturned to introduce a wide range of useful and botanically interesting flora. Because of the magnitude of introductions and the systematic way in which the plants were to be naturalised, the period of John Cameron is often referred to as the "Golden Era" of plant introductions.

After the assumption of charge, Cameron made frequent correspondence with almost all the botanical



A Grand View of Terrace Garden at Lalbagh

gardens and plant introduction centres of the Indian Sub-continent as well as the world, including the world famous "Royal Botanical Gardens" at Kew, London. As a consequence of this, a number of fruit, vegetable, plantation, spice, medicinal, aromatic and other plant species were introduced to Lalbagh during his times. The entire credit of developing apple cultivation around Bangalore on commercial scale undoubtedly goes to John Cameron.

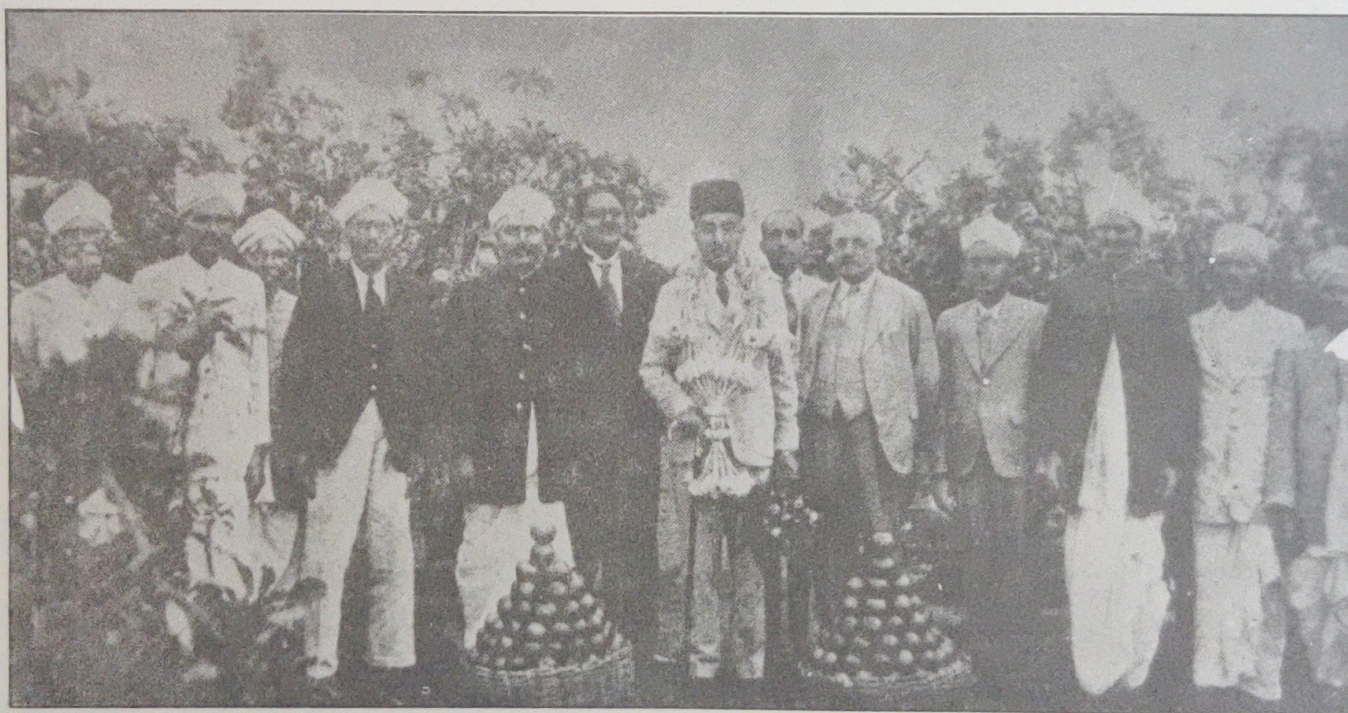
Introduction of Apples by John Cameron

Between 1887 and 1888, John Cameron imported 17 named varieties of apple from M/s Daniel Bros, of Norwich, England to Lalbagh, Bangalore, where he acclimatised these varieties and studied their performance with regard to growth and fruiting. Out of this study, he came to know that the "Rome Beauty" apple could perform excellently under Bangalore conditions. He, thereafter, started persuading the Europeans settled in Bangalore and also the leading local farmers to take up the cultivation of apples. His efforts yielded rich dividends, as the farmers showed overwhelming interest and enthusiasm in apple cultivation. It is also on record that during those days, there was no other crop, which was as profitable as "Rome Beauty" apple in Bangalore.

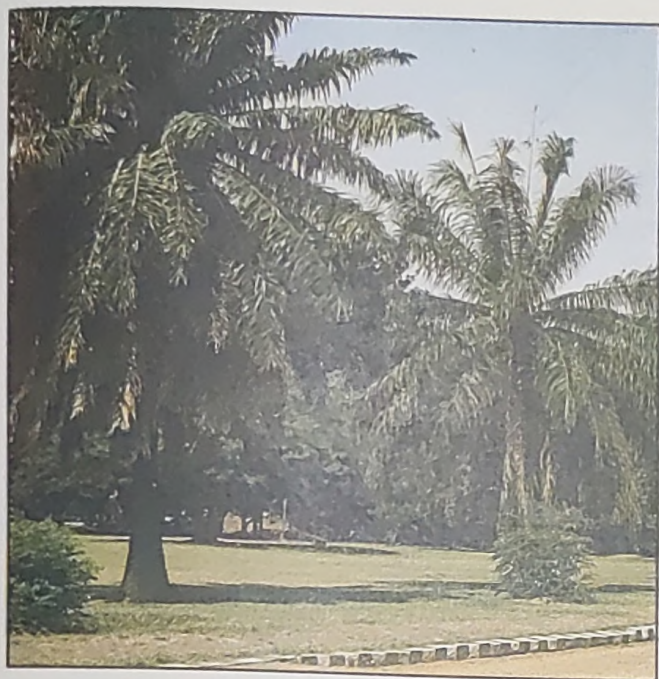
Popularisation of Exotic Vegetable Cultivation by John Cameron

The whole credit of introduction and popularisation of exotic vegetables goes to John Cameron. He introduced quite a many English vegetables into Lalbagh. Because of his strenuous efforts, the exotic vegetables such as Cabbage, Cauliflower, Knol Khol, Carrot, Turnip, Radish, Lettuce, Rhubarb, Celery, Spinach, Beetroot, Garden Peas, etc., have now become the standard vegetables around Bangalore and most parts of the country.

There is an interesting account of introduction and popularisation of Chow Chow (*Sechium edule*) by Cameron. He could get 3 Chow Chow fruits from Ceylon (around 1890) and tried them at Lalbagh under his close supervision. He got good results and he, thus, felt that this perennial vegetable could be successfully taken up around Bangalore. But, convincing the local farmers about this was not an easy task. For this, he adopted a novel method. He started going by the country side on horse back and started convincing the local farmers about Chow Chow, and used to distribute fruits of Chow Chow, freely. He also used to stand near the Bangalore toll gate on Hosur road and used to distribute Chow Chow fruits to the growers. Again after months gap, he used to go to that same



Sir Mirza Ismail, Dewan of Mysore and G.H. Krumbiegel, the Director of Horticulture, in an Apple Orchard near Bangalore (1935)



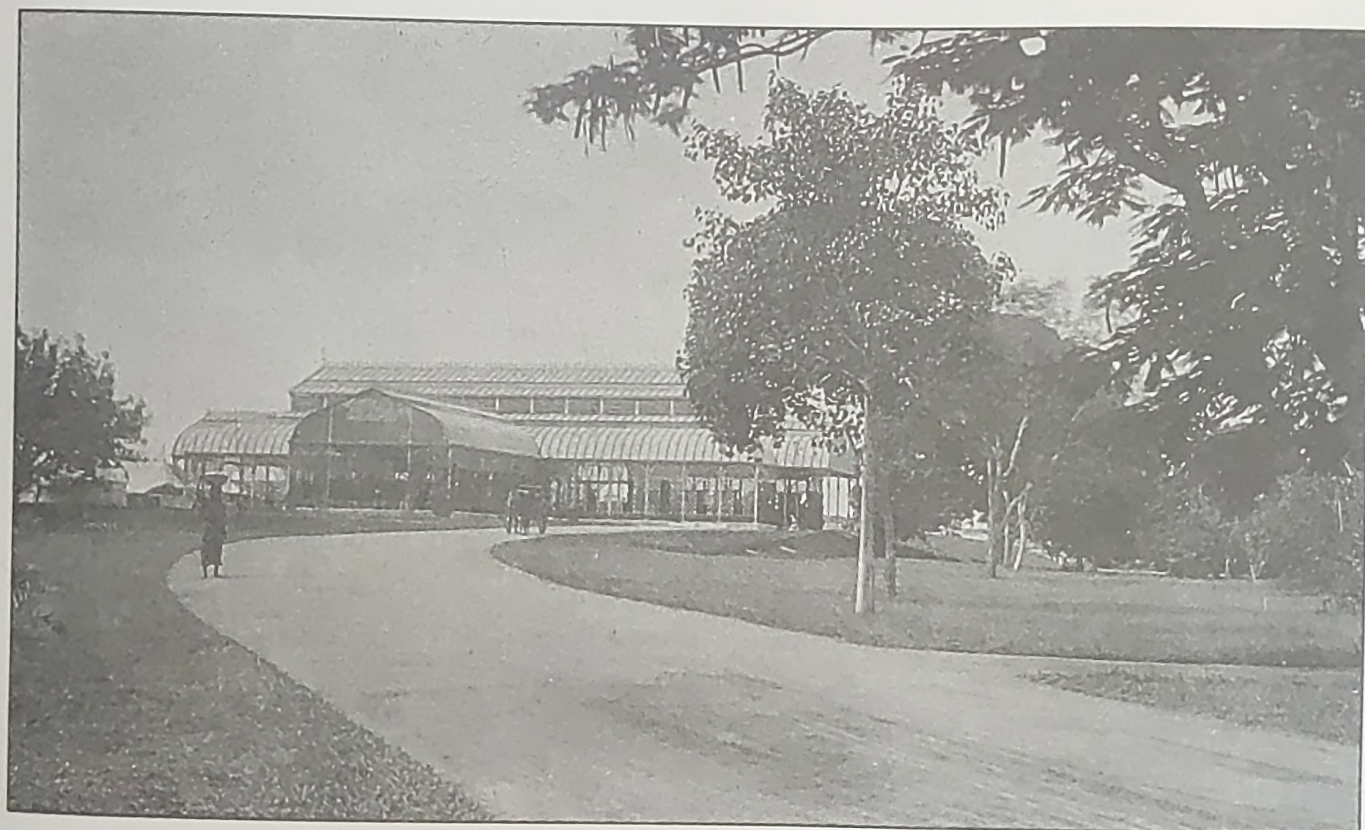
Oil Palms Introduced from Gold Coast (Ghana)

point, to verify whether the growers are bringing Chow Chow to market for sale. John Cameron was lucky, because the growers immediately took to the cultivation of Chow Chow. Its cultivation was easy, yields were prolific and the fruits were available year round.

Other Introductions by Cameron between 1900 and 1908

John Cameron, in the capacity of the Superintendent of Govt. Gardens, established close contacts with almost all the botanical gardens of the world, including that of the Royal Botanical Garden at Kew, London. This liaison helped him to get important plant materials from all over the world.

The notable introductions during this period are: *Brownea rosea* from West Indies (1900), *Juniperus procera* from Kew (1900), *Diospyros discolor* from Indonesia (1903), Oil palm from Gold Coast (1905), *Funtumia elastica* from Indonesia (1905), Rubber from Brazil (1906), *Clerodendrons* from Kew (1906), *Clematis* from Greece (1907), *Catha edulis* from Aden (1908), *Cinnamomum camphora* from Japan (1908), *Cola acuminata* from Brazil (1908), *Dioscorea alata* from Ceylon (1908), Clove from Zanzibar (1908), etc.



A Rare Photograph of Glass House (1900)

Apart from these, there were other numerous plants introduced into Lalbagh.

Erection of Lalbagh Glass House as a Plant Conservatory

The Lalbagh glass house was commissioned during the tenure of John Cameron, who had felt the necessity of a large glassed enclosure for acclimatising and displaying the exotic flora, that he used to introduce to Lalbagh frequently. His dream was realised when the prince Albert Victor of Wales laid the foundation to the Lalbagh glass house on 30th day of November, 1889. This glass house was largely modelled after the celebrated "Crystal Palace" of London. With almost all parts imported from England, the construction work of the glass house was completed within just 12 months of its laying foundation. Initially, the said glass house was named as the "Albert Victor Conservatory", and it was a common scene during those days to witness a large number of exotic plants being grown under this structure. In the subsequent years, the flower shows too started to be conducted in this glass house.

Hectic Plant Introductions by G.H.Krumbiegal (1908-1932)

After putting up a monumental service of about 35 years, John Cameron retired from the service in the year 1908, and to his place came the equally knowledgeable and enthusiastic successor, G.H.Krumbiegal. No sooner he assumed the post of the Superintendent of Govt. Gardens, than he commenced yeoman service in the field of horticulture. Apart from the hectic plant introduction work, G.H.Krumbiegal is also remembered for his unparalleled contribution in laying out almost all the important parks and gardens in the then princely state of Mysore, including the renowned Brindavan gardens at Krishnaraja Sagar, near Mysore. During his term, the Mysore Horticultural Society also came into existence ; and conducting of flower shows in a grand manner became a regular feature of the horticultural activities.

G.H.Krumbiegal had a keen insight about the methodical development of horticulture, on both aesthetic and commercial lines. To raise the reputation of the Lalbagh botanical gardens, he introduced an incredible



A Colourful View of Flower Beds around Glass House

number of exotic flora by making global correspondence and contacts. Thus, he proved himself a worthy successor to John Cameron.

The plant introductions during the times of Krumbiegal are really invaluable and countless. It is an arduous task to list all that he introduced; however, an incomplete effort is made here to list a few of his vast introductions to LalBagh, between the years 1910 and 1925. *Acacia dealbata* from Africa (1910), *Betula* from England (1910), Olive from Italy (1911), *Araucaria bidwilli* from Tasmania (1911), *Castanospermum* from Australia (1911), *Haematoxylon* from Mombasa (1911), *Feljoa sellowiana* from Paris (1912), Allspice from Ceylon (1912), *Agathis* from Australia (1912), *Elaeocarpus bancroftii* from Australia (1912), *Canarium commune* from Philippines (1914), *Celiba pentandra* from Burma (1915), *Cedrela odorata* from Singapore (1916), *Ilex aquifolium* from Kew (1920), *Eugenia michaelii* from Ceylon (1920), *Cordia sebestina* from Egypt (1920), *Malphigia glabra* from West Indies (1920), *Amherstia nobilis* from Singapore (1920), improved strains of *Carum carvi* from France (1921),

Rhus vernicifera from Japan (1921), *Rosmarinus officinalis* from England (1922), Hops from Kew (1922), *Chenopodium ambrosioides* from Budapest (1923), *Hydenocarpus anthelmintica* from Bangkok (1924), *Levistonia australis* from Java (1925), *Anona cherimola* from Jamaica (1925), etc.

Fame of Climacteric Proportions!

Thus, by 1925, the Lalbagh botanical garden was almost overflowing with numerous native and exotic flora of wide ranging diversity, use and interest; which favoured it to become a leading botanical garden in the entire Indian Sub-Continent. The unfailing, hard and sincere efforts of Major Waugh, William Munro, Dr. Wallich, Dr. Cleghorn, William New, John Cameron and finally G.H. Krumbiegal, all had culminated into a single piece of wonderland - called Lalbagh, which opened its doors for the enthusiasts from all over the world. The name and fame of Lalbagh pervaded the nooks and corners of the world; and in the process, the names of all the seven stalwarts became immortal in the annals of the history of Lalbagh.



An Interior View of Glass House during Flower Show (1950)

LALBAGH-ABOUNDING WITH NATURAL LAND MARKS!

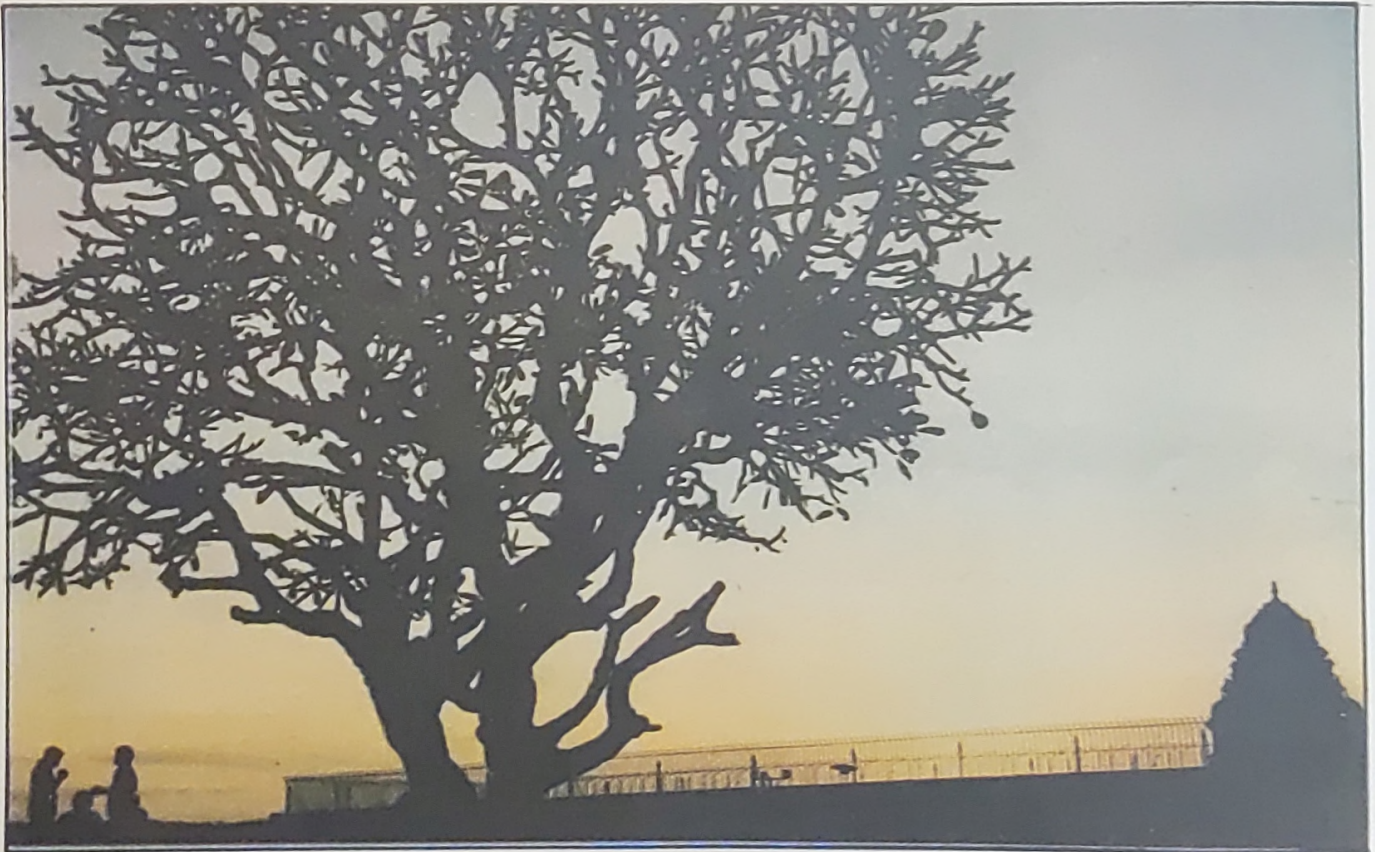
Lalbagh is the place of legends and beauty! a place of rarity and wonders! and a place of paradise and land marks!

The paradox of nature and man over time has made Lalbagh a rare piece on earth gifted with breathtaking landmarks, which naturally remain green in the minds of every enthusiastic visitor who makes a purposeful visit. The greyish-white peninsular gneiss rock mound situated on east, draws a bleak resemblance with the snow capped mountains of Himalayas! The serene and tranquil lake reminds us of the 'Land of Morning Calm'. The tall, stately and majestic trees lead our imagination to the 'Garden of Eden'. The soothing cold and the pleasant breeze from the groves comes like the sprinkling of Ambrosia from the great heavens. Here, the nature smiles, the elements kiss and greens bless the pilgrim who enters the 'Sasya Kashi', or the "Paradise of Plants". Come let us enjoy one by one!

Peninsular Gneiss Rock Mound:

The great plate of South India bears the name 'Gondwana land', which is known for its archaean age!, being one of the oldest land formations on earth, emerged at the begining of the geological time. The rocks of this earthcrest are believed to be older than the oldest rocks on earth, dating back to about 3000 million years. A rare exposure of this antiquity can be seen at Lalbagh in the form of a rock mound, referred popularly as the 'Lalbagh Rock'.

The geologists term this rock as "peninsular gneiss", a term often imparted to the igneous rocks formed with the complex pattern and proportions of granite, quartz and mica. These three ingredients mixed in the molten lava stage in a differential design, have revealed greyish to blackash streaks and lines of various curvature and which are uniquely represented in the Lalbagh rock.



A Silhouette View from 'Lalbagh Rock'

This rock had aroused the curiosity of geologists since long time and it was Dr. W.F. Smith of the then Mysore Geological Department, who made ever first scientific study and analysis of this rock in the year 1916. It is he who classified this rock as the 'Peninsular Gneiss'. Since then, the antiquity of this rock has attracted the geologists all over the world, and has given rise to erudite scientific papers on the geological evolution of earth by the celebrated geologists of the then Mysore Geological Department, the Geological Survey of India and the scholars from various related academies and institutions. The study and analysis of these rocks is still giving endless source of information on the very formation of our planet earth. Such an important natural land mark is the 'Lalbagh Rock' and in recognition of which this natural monument is being preserved by the Geological Survey of India, on the orders of the Government of India.

Now, let us forget geology and try to view this rock in a common man's way. It is sloping steeply on western and northern directions and merging gently with soil on east and south. The best look of it can be had from only north, where the originality of rock is by and large intact. From the angle of aesthetics, the view from west or north-west is panoramic, with greyish-white



'Lalbagh Rock' Dating Back to Archaean Age

clean plate like steppe appearance due to the extensive and senseless quarrying in the past when the people were unaware of the worth of this rare gift of nature. In the broad sunlight, especially after rains, the rock shines like snow perched peak and this kindles interest in young and aged alike to scale to its tower top, with unexplained enthusiasm and joy. On scaling, they feel as if they have conquered a big mountain, cheer and wave their hands in pride of achievement! A trip to Lalbagh becomes incomplete if any one does not undergo this experience!

The Lalbagh Lake:

Let us descend from 'Lalbagh Rock' to the 'Lalbagh Lake'.

A short walk from the rock on south western direction takes the visitor to the celebrated Lalbagh lake. This is yet another place of thrill and enjoyment at Lalbagh and its vicinity provides a place of seclusion to the young, romantic pairs, who step into Lalbagh in order to find a piece of privacy. But, yet the singing Koel (Cuckoo), the chirping birds and whistling squirrels, who dwell in and around the lake challenge the solitude of these reclining pairs!

There is nothing much on record to say really how old this lake is. Probably it might have been a gorge before it was constructed due to the natural action of erosion, or might have been a small pond due to the removal of soil. It is said that during the period of John Cameron, Superintendent of Lalbagh, this tank was developed and brought to the present grandeur. This happened around 1890. The laying out of the attractive and ornamental steps to the tank bund, construction of the waste weir, pitching of the stones on the inner side of the bund, formation of path on bund, creation of ornamental stone and mortar seats, planting of flowering and other trees, construction of gate-valve, etc., were taken up during his tenure. The unauthorised quarrying of stones towards Siddapur gate was also completely stopped at this time. The depression that had formed due to quarrying also eventually filled up with water and became the eastern wing of the Lalbagh lake.

In the beginning of the last decade, two islands were formed in the lake as a part of improvement of environment of this lake, after the silt was removed from the foreshore. These islands are interconnected, beautiful lawns, tree cover and shrubberies have been developed on them. Now, the front portion of lake is fenced. From time to time, efforts are being made to remove the waterweeds and silt from this lake. For some period in the past, sewage water was also al-



A Tranquil Scene of Lalbagh Lake

lowed into lake, which spoiled the quality of water, but flowing of sewage has now been completely stoped into this lake. A net barrier has also been erected to check the spread of water weeds into the lake proper from the swamp in the foreshore. A small and narrow bridge is also created to connct the bund with training school.

The present area of this lake is about 30 hectares, including the swamps. During Ganesha Festival, hundreds of devotees come to this lake to immerse the idols of Ganesha. Boating facility was also thought of, but the idea is now given up due to certain unavoidable reasons.

Although the lake doesnot harbour any important water plants such as *Nymphaea* and *Nelumbos*, it has become a nice refuge for dozens of water and swamp birds. Since water is available in the lake perennially, thousands of birds are dwelling in the adjoining groves and because of this it has become a favourite site for the bird watchers.

Several kinds of fish are also living in the water of this lake. Fishing in this lake is strictly prohibited. Some

kinds of water snakes, and water frogs have also made this lake as their home!

The water of this lake is being made use for irrigation purposes by pumping water out through pumpset. The water of this lake is also used for running an artificial waterfall near the lotus pond.

During morning time, the calm and still water of this lake reflects the green and colourful vegetation, creating a picturesque atmosphere, which cannot be explained, but only be experienced! The vegetation around the lake is so dense and so tall that one can hardly find any buildings from this lake. The tranquil atmosphere that prevails during dawn and dusk around this lake offers a magic sight that heals the wounds of modern civilization! and refreshes the people by offering energizing breeze and enchanting sceneries!

The Trees that are Legendary!

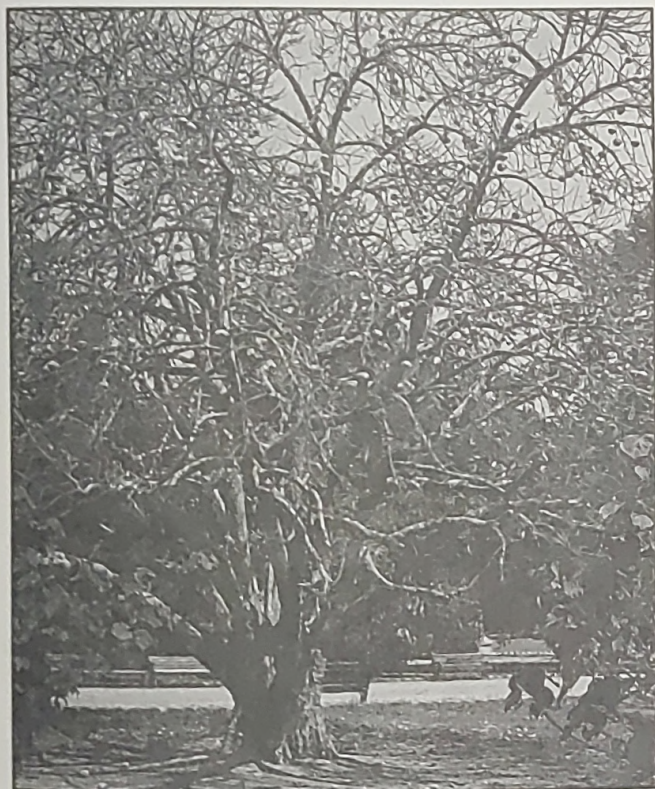
The trees are the gifts of nature and they stand around us as a testimony of their firmness, endurance, dominance and longevity. Their presence gives life to

the earth, colour and vibration to the painting tended by the Benefactor of all life systems on earth!

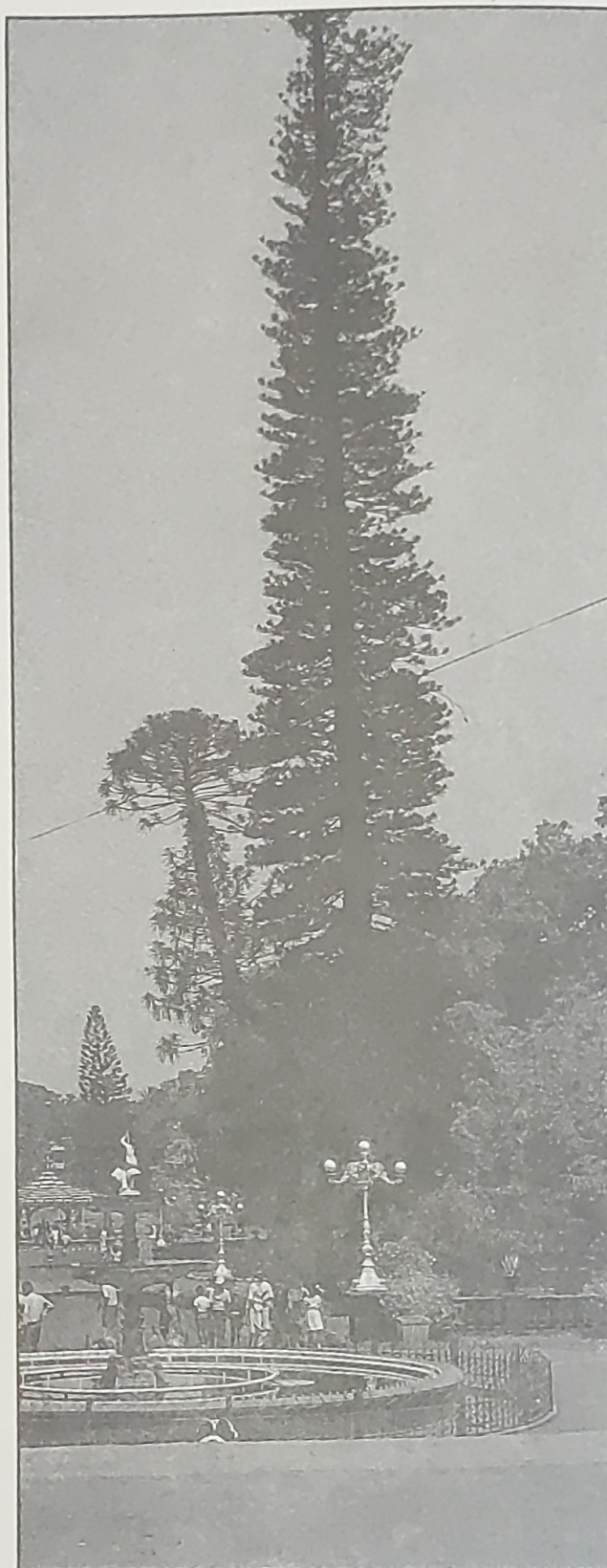
The trees of Lalbagh not only provide cool breeze, but also warmth to the botanists! The multitude of speices and varied types of native and exotic flora often make botanists to scratch their heads! What to talk of them! Of their size? or of their form or of the lovely foliage, flower and fruits they bear? What and what not to appreciate? Only poets can bind them into their poem! They can understand and converse with them!

Look, here is a botanist standing near Glass house and looking at tall, tall and tall trees, towering to the edge of the sky! He says these are *Araucaria cookii* trees or cookpines, waving only their top gently and proudly against the blue sky, and whisper slowly as "We are the tallest trees" and "We are the tallest trees in Lalbagh".

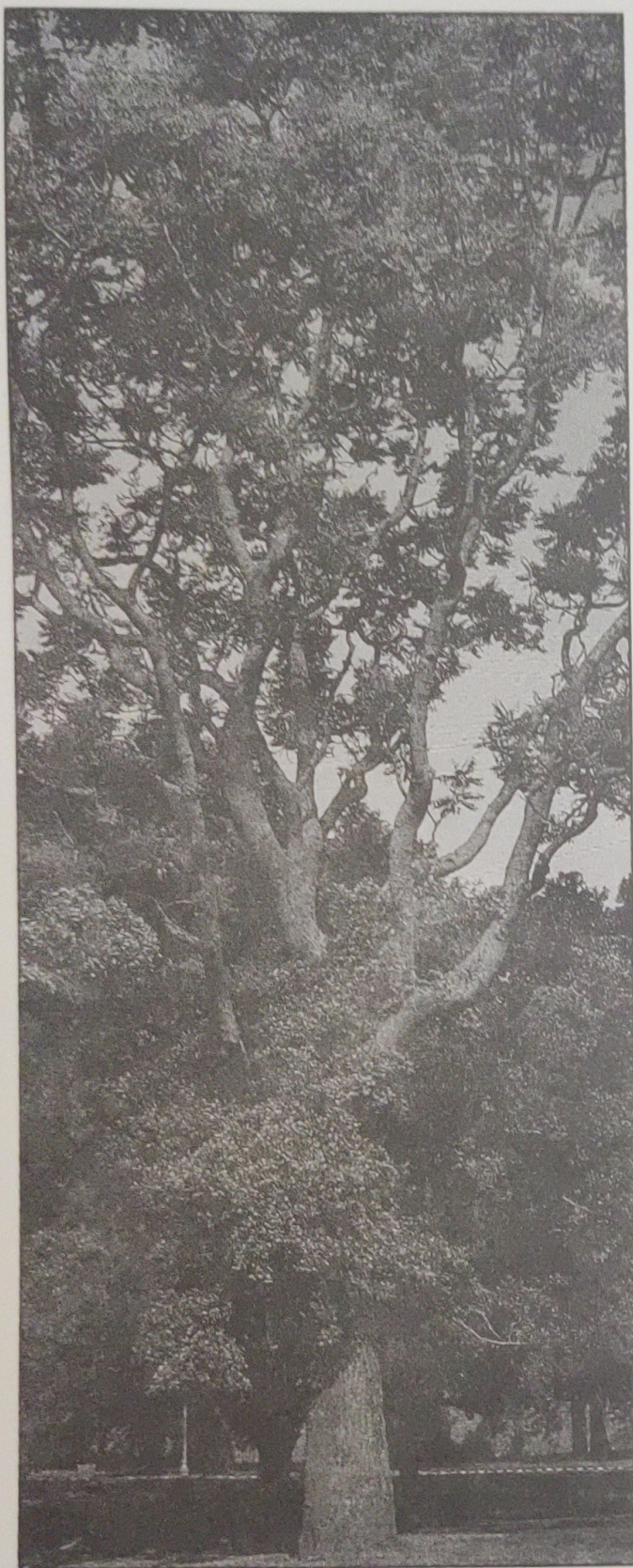
The monkey puzzle plant (*Araucaria bidwillii*) standing nearby has developed jealousy with cook pines, and cannot allow anyone of us to touch, lest prick us. Neither the birds sit nor the monkeys climb, the monkey puzzle tree poses a look of an orphan!



Dillenia indica Tree Laden with Fruits



Sky Scrapping *Araucaria cookii*



The Mythic Kadamba Tree

Are there the coconuts on banyan tree? Oh no!, neither these nuts are coconut nor these trees banyan. These are *Anda gomesii* trees bearing large brown fruits as big as dehusked large coconuts. You can eat their pulp, but I am sure, you may not relish!

"See! how big is its trunk?" exclaimed a child near the seed testing labs. This massive tree is called *Celiba pentandra*. The big tree need not be a strong tree and this irony fits well to this White Silk Cotton tree, whose massive trunk is as hollow as empty tunnel!

"I am fed up with these trees", said an old lady when a small dried branch of rain tree fell right on her head. Then there came the shouting from a nearby tree "Look at me! Look at me! I am the looking glass tree". There was no exaggeration in its shouting, the lower sides of the leaves were shining like silvery glass! I looked and walked forward.

How is that a ghostly tree standing here with head down and roots up? "You are wrong!" told the tree. "I am like this only. I am one of the rarest trees in this country and you can call me as Baobob tree (*Adansonia digitata*). I was earlier growing in Sahara desert and my skin scaled and when I complained this to the Creator he sent me to African swamps, where my trunk bulged. I again complained. The Creator became angry and pulled me out of soil and threw me away and since then I look like 'Upside down'". Oh Baobob tree! not only your look but also your story is strange! Learn to live in peace!

There are countless mango trees in Lalbagh, but there are 3 trees that are unique. These are near fernery. They are unique in the sense that they exist since last 250 years. Perhaps, Hyder Ali and Tippu Sultan must have eaten their fruits. They have withstood the vagaries of nature over time and some have undergone surgery too for protection! No doubt these trees are grand old, yet not lagging behind any other trees in giving perfect shade to the tired visitors and fruits to their care takers.

Then, come to the trees with graceful foliage with 'sculpture' like trunk near the main entrance of Lalbagh. These are Java figs (*Ficus benjamina*). Till recently there were five such trees and I have overheard guides telling to innocent group of visitors from North India that these trees have been planted by five Pandavas, one each! The myth for convenience! These trees were brought here towards the end of last century from Indonesia. The foliage of these trees is so majestic that, they stand to hold a good reception to the every visitor who enters this garden of paradise. For this very quality of them, a grand civic felicitation function was held beneath their canopy to honour the

Noble laurate Rabindranath Tagore during his maiden visit to Bangalore in the year 1919. A rare confluence of great man with great trees!

Can you be just satisfied with only one *Ficus* species? No! "Then come to me", called the *Ficus krishnae*. "I may not provide shade like other *Ficus* plants, but I show you a wonder", the tree told. I was amazed to see the pouch on the backside of leaves. Legend says that when Krishna was cowboy, he used to eat butter carrying it in the pouch of this leaf. I plucked a leaf and went forward. Then came the order! "After your visit to godly tree, you must also visit a devil's tree". I turned around and found a very tall tree with branches only at top, haunted by many bee hives! I thought it must be the devil's tree and approached. A name plate was fixed to its trunk bearing the name *Alstonia scholaris*. I was really upset by looking at its buttressed base and ghostly appearance of canopy and was further threatened by the hostile rock bees, and quietly vacated the place.

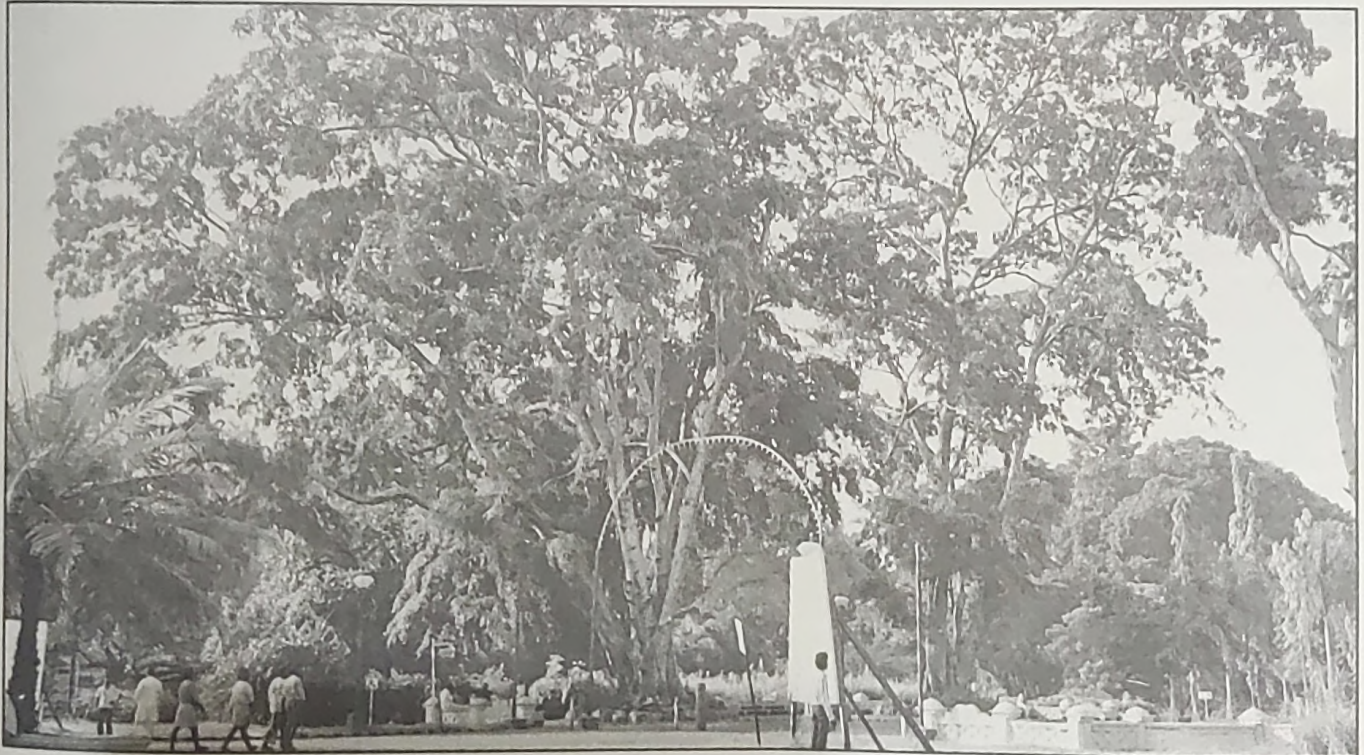
Then I decided to see a noble tree, noble by all means!. An officer told, "why can't you see *Amherstia nobilis*? There can't be any more noble tree than this elsewhere in the world" This tree is only a leap apart from the dreaded devils tree. Oh! *Amherstia* is really

noble and graceful! The flowers in hanging bunches were looking like flying cranes! A really worthy tree!

Then I walked fast looking the trees with strange names such as Putrajiva (Child's life) tree, Dividivi, Fever nut, Monkey Jack, Tung oil tree, Cabbage tree, Flame of the forest, Ylang Ylang, Cannon Ball tree, Lignum vitae, Tree Tomato, Elephant apple, Fern tree, Bastard Cedar, Sausage tree, Mummy apple, Cork tree, Tree of Sorrow, Kadamba, Swamp pine, Tamar tree and Damar tree.

Somebody had told that there is a 'Rudrakshi' tree at Lalbagh and on enquiry I came to know that it was growing in the gardeners training school yard. When I reached there, I found many strange blue coloured Rudrakshi fruits fallen at its base. A work woman came there and collected all the fruits and dumped at the base, and performed the worship to this sacred tree.

On way back, I was attracted by a grove of unusual and gigantic sized palms, called Umbrella palms or Century palms, growing to amazing proportions with umbrella like leaves. Those are said to flower at their terminus top after a century! and then ending their very existence, of course after shedding a tonne of nutty fruits around, which inturn perpetuate the great legacy of these palms!



Stately Java Fig Trees at Lalbagh Entrance

THE ASTOUNDING FRUIT AND NUT WEALTH OF LALBAGH



Macadamia Nut - Introduced from Australia

Among various things, the Lalbagh botanical garden is known for its vast number of fruit and edible nut yielding species. These plants are collected from all over India and the five continents. Most of these fruits and nuts have acclimatised very well to the salubrious climate of Bangalore and are performing excellently. In the following para, an attempt has been made to give an exhaustive list of fruits and nuts growing in Lalbagh botanical garden:

Mango, Sapota, Custard apple, Bullocks heart, Cherimoyer, Atemoya, Sour Sop, Jack fruit, Bread fruit, Monkey Jack (Amsul), Bilimbi, Kamrakh (Star fruit), Coronda, Natal Plum, White Sapota, Star Apple, Lime, Lemon, Sweet lime, Seedless lime (Tahiti lime), Citron, Rangpur lime, Sweet orange, Mandarin, Calamondin, Rough lemon, Pummelo, Grapefruit, Sour Orange, Sebastianian fruit (Challe Hannu), Elephant Apple, Persimmon, Mangosteen, Apple, Pear, Peach, Loquat, Jamun, Dog Jamun, Rose Apple, Malay Apple, Watery Rose Apple, Barbados Cherry, Brazillian-cherry, Pineapple, Pineapple Guava, Wood Apple, Fig, Country Fig, Wild Fig, Governor's Plum,

Garcinia cambogia, *G.indica*, Phalsa, Wild Phalsa, Manila Tamarind (Seeme Hunse), Rambutan, Litchi, Passion fruit, Avocado (Butter fruit), Anola, Star Anola, Date Palm, Hog Plum, *Pleiogynum solandri*, Guava, Cattleya Guava, Chinese Guava, Pomegranate, Tamarind, *Vangueria edulis*, Grape, Ber, Bael, Dovyalis caffra (Kei apple), Papaya, Banana, Surinam Cherry, Mulberry, Tree Tomato, Mammee Apple, Cashewnut, *Castanospermum australe*, Colanut, Coconut, Arecanut, Oil Palm, Coffee, Cocoa, Macadamia nut, Soapnut, Marking nut, Tropical (country) almond, etc.

Some of the above plants growing in Lalbagh have completed one or even two centuries! Some have attained gigantic height and proportions! The three legendary mango trees (of seedling origin) dating back to the times of Hyder Ali and Tipu Sultan, are still in a grand form and satisfying the people with their untiring service by way of providing tasty fruits. Not only the people, but also countless animals, rodents, insects and birds are being benefitted by the fruits and nuts of Lalbagh.



'Ylang Ylang' Flowers - with Alluring Fragrance!

THE FRAGRANCE THAT EMANATES FROM LALBAGH!

Ever since the man has come across the fragrant plants, he has been fascinated by their aroma, and has literally surrendered to them. The history reveals us of the prospering trade of scented oils, the explorations and wars that have happened on account of essential oils, and the stories of love originating from the fragrant flowers! Fragrance has the character of attracting, stimulating, provoking, enchanting and even maddening the man and animals who come in contact with them!

As a tropical botanical garden, Lalbagh is abounding in fragrant plants and flowers. A walk, whether in morning or evening, in day or in night, takes our senses to the abode of fragrance that always pervades the air and atmosphere of Lalbagh!

The fragrant atmosphere, especially during spring times, refreshes the minds of visitor and makes him to carry the sweet memories of Lalbagh.

Over centuries, enormous number of fragrant trees, shrubs, vines and herbs have been introduced into Lal-

bagh and the noteworthy among them are as following:

Cananga odorata (Ylang ylang), Manoranjan, Mexican Linaloe, Night Queen, Day Queen, *Citharexylum sub-serratum*, Camphor, Cinnamon, Jasmines, Cape Jasmine, Sky Jasmine, Japanese Pivet, Champaka, *Mimusops elingi*, China Box (*Murraya exotica*), Nutmeg, Oleander, Screw Pine, Eucalyptus, Plumeria, Allspice, Rangoon Creeper, Roses, Sandal, Cedars, *Schinus molle*, Madagascar Jasmine, *Uvaria kirki*, *Val-laris dichotama*, Vanilla, Sweet Basil, Lemon Grass, Citronella Grass, Palmarosa Grass, Khus (Vetiver), *Angelonia grandiflora*, *Aerides odoratum*, *A. multiflorum*, Pacholi, Scented Geranium, Ginger Lily, Lavender, Sweet Bay, Rose Mary, and a lot and lot others.

The fragrance cannot be described, but can only be felt and appreciated. Though the fragrance is unseen and inanimate, yet it can attack and arrest you! Of-course, a sweet-arrest, the arresting of mind with nature!

A View of Ornamental Fountain at Hardinge Circle with a Backdrop of Curzon Park, Mysore (1930)



The Legendary Krishna's Butter Cup Tree (Ficus Krishnae)

THE 'HEAVEN' FILLED WITH SACRED PLANTS!

When viewed from the broad angle, anything and everything that is created by the 'Nature' is sacred. All the plants are the creations of the 'Nature' and thus they are to be considered as sacred. Yet the mythology, customs and beliefs make us to feel that some plants are more sacred than the rest!

Such sacred plants have become an integral part of the routine life and religious procedures of people belonging to various faiths on earth. All the world-religions recognise this fact and thus the plants control the way of life and feelings of human beings.

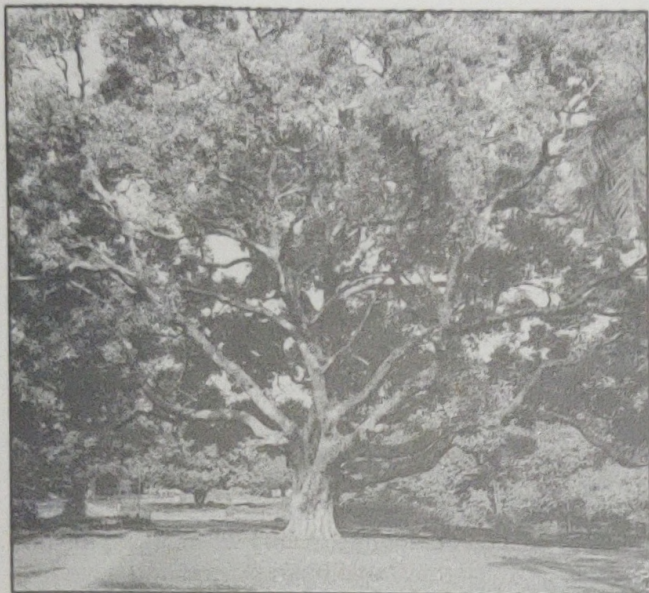
The trees and woods are the abode of Gods, Yakshas and Ghandharvas. The Hindu mythology is full of description of countless 'Vata', 'Vana', 'Lata' and 'Pushpas'. The saints and sages used to perform penance in the lovely, serene, tranquil and peaceful surroundings of 'vanas'. Lord Buddha got 'enlightenment' beneath a 'Bodhi Vriksha' (Peepul tree). 'Parijatha' (Nyctanthus) was "the tree of heaven", and 'Kamala' (Lotus), the seat of 'Brahma'. 'Bilva' adorned the head of 'Linga' and 'Champaka' pleased 'Lakshmi'. Offering of flowers and leaves to Gods, thus became a part of religious customs and as a means of performing 'pooja'. It is still firm in the minds of people that the sacred plants and trees bring good fortune in their life and protecting and paying reverence to them, leads them to path of salvation. It is also strong in the minds of most people that such plants if

planted in the house yard garden make the whole area sanctified; looking them in the morning of everyday purifies the thinking and provides solace to the religious mind.

If the objective of the visitors to Lalbagh is to see and acquaint with the sacred plants, there is a surprising lot for them. The collection includes the following:



The Sacred Lotus.



'Enlightening' *Ficus religiosa*

Bilva (*Aegle marmelos*), Banni (*Acacia ferruginea*), Nagalinga (*Couroupita guinensis*), Crataeva religiosa, Krishna's Butter Cup (*Ficus krishnae*), Peepul (*Ficus religiosa*), Shivashakthi (*Gloriosa superba*), Tree of

Life (*Guziacum officinale*), Madhavi lata (*Hiptage madablata*), Hibiscus rosa-sinensis, Impatiens balsamina, Heavenly Blue (*Ipomoea leari*), Mehendi (*Lawsonia alba*), Champaka (*Michaelia champaka*), Himchampa (*Magnolia grandiflora*), Parijata (*Nyctanthus arborescens*), Kadamba (*Anthocephalus cadamba*), Rudrakshi (*Elaeocarpus ganitrus*), Nag Champa (*Mesua ferrea*), Margosa (*Melia azadiracta*), Bakula (*Mimusops elengi*), Lotus (*Nelumbium speciosum*), Taware (*Nymphaea* sp.), Oleander (*Nerium Oleander*), Sacred basil (*Ocimum sanctum*), Sweet basil (*Ocimum basilicum*), Olive (*Olea europaea*), Passion flower (*Passiflora cerulea*), Pagoda plant (*Plumeria* sp.), Christmas flower (*Poinsettia pulcherrima*), Peacock flower (*Caesalpinia pulcherrima*), Kanaka Champa (*Pterocarpus acerifolium*), Child Life Tree (*Putranjiva roxburghii*), Ashoka (*Saraca indica*), Nandibattalu (*Tabernaemontana wallichiana*), Arjun tree (*Terminalia arjuna*), Tare (*Terminalia bellerica*), Portia tree (*Thespesia populnea*), Indian Laburnum (*Cassia fistula*), Honnarike (*Cassia auriculata*), Vishnu pada (*Clitoria ternatea*), Shrikalli (*Euphorbia tirucalli*), English Holly (*Ilex aquifolium*) and countless other sacred plants can be seen at Lalbagh.



Pagoda Tree (*Plumeria* sp.) in Bloom

THE MOTHER INSPIRATOR FOR PARKS, GARDENS, FARMS AND NURSERIES

"As is the seed, so is the crop" - is the much used usage in India. This means that if the intensions are good, the results are bound to be good. This proverb holds good aptly in case of the founders of Lalbagh, who visualised a prosperous development of the profession of gardening (horticulture) in this part of nation and unfailingly the state of Karnataka has become the horticultural state of India. It is not a just miracle, but it has been possible only by the recurrent and persistent advice, persuasion and encouragement rendered by the authorities at Lalbagh to the farming folk. At the helm of all this stood the Lalbagh-the master of all gardens and the mother-inspirator. The founders of Lalbagh and those who nurtured it to the present state, had in their mind a prominent feeling of extending benefits of plant wealth of Lalbagh to the people for its commercial exploitation. For this very objective, the site of this master garden always served as a place for introduction and acclimatization of various native and exotic flora. Mr. William Munro, Mr. New, Mr. Cameron, Mr. Krumbiegel, Mr. Javaraya, Dr. Marigowda and all others who administered this garden did their best to spread the message of horticulture to all the parts of Karnataka as well as India.

For the commercialization of horticulture in the state, there needed the agency of farms and nurseries-for meeting the needs of planting material and demonstra-

tion of various essential cultural practices, as most crops were new to the farming folk. Mr. William Munro, in the last century itself, had felt that for the alround development of horticulture on commercial scale, at least a farm and a nursery are to be provided to every taluk of the Mysore Province; and likewise certain farms and nurseries were founded in and around Bangalore. It is only Dr. Marigowda fulfilled the dream of Mr. William Munro, by establishing a net- work of as many as 350 farms and nurseries in the state of Karnataka, during his tenure as the Superintendent of Government Gardens and later as the Director of horticulture. Now the figure stands at 395. All the taluks in the State now have atleast a nursery and a farm. These farms and nurseries are very well serving the objectives for which they have been started and have definitely contributed a lot to the horticultural revolution in the state as well as the country.

These farms and nurseries owe very much to their master, the Lalbagh, from which they have derived 'mother inspiration'. Most of the plant wealth that is found in these farms and nurseries was originally introduced into the Lalbagh garden. Hence, for this reason, the whole gardening folk of Karnataka should be for ever grateful to the Lalbagh botanical garden.

Similarly, the contribution of Lalbagh to the development of parks, public resorts and hill stations in Kar-



The Legendary Krishna's Butter Cup Tree (*Ficus krishnae*)



A Panoramic View of Brindavan Gardens

nataka is unparalleled. Almost all the parks, whether they are private or public, are the 'children' of the Lalbagh garden at Bangalore. Not only the provision of planting materials but also the layout plans and executions of the most celebrated parks in the state were imparted by the able horticulturists at Lalbagh.

Mr. Krumbiegal laid out the renowned Brindavan Gardens at Krishnarajasagar in the late twenties. Most of the planting materials used there find origin in the Lalbagh gardens. So is the case with the celebrated gardens such as Curzon Park at Mysore, Cubbon Park at Bangalore, Pampavana at Munirabad, and countless small and big public and private parks and pleasure gardens laid out throughout the length and breadth of Karnataka, as well as India. A full-pledged Land Scape Unit, located at Lalbagh, is doing its best to help in this direction.

The two most fascinating and renowned hill stations of Karnataka, viz: Nandi Hill Station in Kolar Dist. and

Krishnarajendra Hill Station at Kemmannagundi in Chikamagalore district too pay their obligation to Lalbagh. With their breathtaking layouts, rare and beautiful flora and the salubrious climate, these hill stations have become the famous holiday resorts, especially during summer months, when the people go there to find relief from the dreaded heat and stillness of the summer.

Thus, like a big banyan tree, the Lalbagh botanical garden sent its branches all-round with the help of 'prop' roots and attained immortality. It not only grew itself, but also facilitated the other gardens and parks to grow. It not only nourished itself, but also nourished its 'family'. Its legacy is still growing by making use of all the 'blessings' that are kept reserve in its 'ever resourceful womb', which is as potential as the 'Mother Earth' herself.

THE VITAL LUNG SPACE OF BANGALORE:

Lungs are the vital organs through which the human beings respire and make the living. They help the blood stream to absorb oxygen and remove the injurious carbon dioxide. If the function of lungs is disturbed, the vitality of the body suffers. Similar is the case with our fast growing, and industrialising cities, which are being steadily subjected to the action of 'slow poisoning' by the ever escalating polluting forces, and thus slowly driving the occupants of these cities to distress and health hazards. The only solution to this problem is 'going back to nature', by creating vast areas of vegetation at frequent intervals in the cities, so that such areas act as 'lung spaces'. In metropolitan city like Bangalore, the natural vegetation

has long back vanished and the only 'green' that can be seen is in the form of interspersing parks and gardens. Among these too, only effective patches of vegetation can be found in Lalbagh and Cubbon park.

An aerial view of Lalbagh presents a grand view of vegetation therein. Such thick and continuous vegetation can only serve as effective 'lung spaces' for the people. The avenue trees, in however big number they may exist, do not serve as 'lung spaces' and this fact implies us of the importance of contiguous block-plantations. Right now, Lalbagh is one such valuable lung space and it is the duty of every one of us to protect and develop it in a befitting manner.



Sunset as seen from Lalbagh Rock

THE WORTH OF BOTANIC GARDENS

By M.Dwarakanath Sharma,
Ex-Floriculturist, Lalbagh, Bangalore.

It is rather hard to define a Botanic garden, for these institutions in their long chequered history, have undergone several cycles of development and indeed they seem to be entering a new phase even at the present day. The most remarkable change in them, however, appears to be that in modern times they have become institutions of great public utility. The Botanic Gardens, in general, are found to fall roughly into two categories. The term 'Botanic Garden' has been used for centuries and is in fact, still used to designate, a planted area of garden serving as an adjunct to the Botany Department of colleges or other institutions. Such gardens are very common and are inevitably found in almost every college of science, but the Botanic Gardens as conceived and understood popularly are separate and independent institutions by themselves which, however, may work in close co-operation with universities and colleges or any other institutions and these gardens are of great use to the public.

A Botanic Garden may, therefore, be defined as an institution meant primarily for advancement of botany and conservation and dissemination of knowledge of plants to the public and secondarily to serve the public in many other related ways. The grounds of a Botanic Garden constitute a veritable museum of living collection of plants of different kinds, climates and countries planted on a Botanical basis and each of them properly labelled with information as to its name, nativity and the family to which it belongs, etc., and each plant is looked after with utmost care.

These plantations may contain, according to the type of plants, separate sections or units as the 'Arboretum' containing woody trees, 'Economic garden' comprising trees of economic importance, 'Herb garden' consisting of medicinal plants, 'palmatum', 'Fruit gardens' and so on and a number of other sub-sections such as varietal collections of different flowers, etc.

Many Botanic Gardens comprise at least three sections, namely the 'Arboretum' comprising only woody trees, 'Fuitectum' comprising shrubs and vines and 'herbaceous garden' comprising only herbaceous (non-woody) plants. This classification is based on the form and habit of growth of plants. Probably it is because of the recognition of these numerous planting

units that make people to refer to 'Botanic Garden' as "Botanic Gardens". The use of terms "Botanical" or "Botanic" is synonymous. Botanic gardens are usually found to be embellished with such features as attractive flower beds, hedges, beautiful pergolas, well maintained lawns, delightful fountains and other garden beautifications as Botanic Garden is a common meeting ground of the correlative sciences of Botany and Horticulture.

The aim of any Botanic Garden worth the name is the conservation of knowledge and ideas relating to plant life which is made possible by library, herbarium, and field trails. Interpretation of knowledge and ideas, which is chiefly accomplished by organised labelled collection of living plants and in a wider way by issuing of technical and popular publication, in addition to the oral advice regarding culture of plants given by the staff whenever sought by the public. It is also the aim of a Botanic Garden to infuse love for plants and develop aesthetic sense among the people. It is also the aim of a Botanic Garden to provide training to interested people in all the aspects of gardening, fruit and vegetable growing, etc.

Botanic Garden Vs Public Park

The difference between the two is often not properly understood, perhaps every where, but more so in our country. No doubt some times it is rather difficult to distinguish them superficially, but the difference between the two will become abundantly clear if one just tried to observe them. The fundamental difference is that in a public park plants are arranged mainly for landscape effect with little or no regard to their Botanical considerations. While a Botanic Garden comprises extensive collection of plants of different climates and countries introduced and acclimatized and displayed. A park consists of a collection of small number of familiar and commonly available species. Further, the plants in a Botanic Garden, just as the things in a museum, are labelled properly intending chiefly to serve the educational ends, for critical examination and study by the people. In a park, plants are not generally labelled and even if some plants are labelled, as may be seen in the Garden of Victoria Memorial Hall in Calcutta, no constant effort is made to keep them labelled always. Since a Botanic Garden is an institution for scientific investigations with regard to plants and for conservation and diffusion of knowledge, laboratory, library, herbarium, etc, form indispensable adjuncts of the garden; whereas, these



Terrace Garden - Lalbagh

are not found to be possessed by a park. Another distinction is that a park is intended chiefly for recreation; whereas, Botanic Gardens are, though they may be large enough to have park features, are nevertheless chiefly intended for education and all regulations and restrictions governing their use by the public are based on this fact. Doubtless, people may visit them for recreation to withdraw for a moment from noise and boredom of a city life and to derive pleasure only. "I am less enamoured of truth than beauty if I could spend the course of everlasting time in paradise of varied loveliness, I do not fancy my felicity would be greatly impaired if the last secrets of the universe were withheld from me" said W. Mac Neil Dixon. Therefore, while the aim of Botanic Garden is mainly scientific and predominantly instructive, it may also administer to those who come to seek only happiness amidst beauty, as it is glad to serve the community in every way, provided it does not interfere with its primary functions. They can by all means be used for passive recreation, relaxation and contemplation. A botanic garden, however, is not a place for throughfare, picnics, radio concerts, games, sports and fun and frolic, which defeat the very purpose of Botanical Gardens.

Important Functions

The functions of a modern Botanic Garden are necessarily multifarious because its objectives are multifarious; but in all the instances they may not be precisely the same as they are usually modified according to the local requirements, restrictions of the area, climate, etc. It may often be found that for want of funds many gardens altogether omit some of the weighty and expensive objectives, yet in all cases their activities, are predominantly scientific and instructive as otherwise they cease to be real gardens of science. As an universal rule, it is the foremost function of a Botanic Garden to bring together within its available means the greatest possible number of select plants from different parts of the world and display them for public inspection and study. Introduction and acclimatization of superior and improved varieties of economic plants and popularisation of suitable ones on a commercial scale, which results in the economic betterment of the areas, is a function of special importance. It should also disseminate information regarding the culture of various plants, their pruning, fertilising, treatment to pests and disease, etc., by issuing periodicals and other publications, which naturally

involve conducting of local trails. Botanical research has always been and should be a major activity of Botanic Gardens, which are independent institutions. The history of earliest gardens of Italy is almost extensively a history of investigations carried out for the purpose of extending knowledge of plant life. The garden should also be made a beautiful spot in order to inspire love for plants, to educate the community to higher Horticultural conceptions, by exemplifying, in its planting, the utilization of plants for aesthetic effect, in planting of avenues, parks, homegrounds, etc.

Value of Botanic Gardens

A Botanic Garden, whether, small or big, if scientifically and wisely planned and carried out, can be of great value to the community. The uses of Botanic Gardens are varied and many, and they can be broadly dealt under three heads: the scientific, education and social. A Botanic Garden is of greatest value as it works for the progress of pure science as well as applied sciences of Agriculture, Horticulture, etc. which has a great bearing on the living standard and material well being of the people. The researches and investigations done by the staff may help and lead to scientific observations of the habits and life of plants on the part of the lovers of plant science may lead to highly valuable and a reaching results. For instance, Mendel, an Austrian monk working in a monastery garden many years ago, observed some interesting facts regarding flowers he was breeding. At that time neither he nor his observations and conclusions received attention of anybody. But, years later these conclusions became the basis of the study of heredity both in plants and animals. These observations of Mendel have helped modern Agriculture and Horticulture to evolve disease resistant and improved varieties of various plant crops which are of great importance from the point of view of food production as an agency of increasing the plant wealth of the country by introduction and acclimatization of plants.

The second is educational value. It is generally said that knowledge could be acquired by reading books and that it is possible to read about plants and thus acquire knowledge of plants and their cultivation, etc., such a notion is often deceptive. True knowledge comes from experience, but reading imparts information.

Which is only a second-hand sort of thing. The knowledge of scientific cultivation of plants, fertilizing, pruning, etc., and treatment of pests and diseases etc., which can be had from Botanic Garden freely, is of greatest importance, as it helps for the commercial importance of the area and, therefore, in the bet-

terment of the health and economic life of the community. A Botanic Garden, therefore, is not only an educational institution, but also a public benefactor. Botanic Garden is also of great use in schools and colleges for Botanical and Nature study.

The third is the social contribution. It is realised that much prevailing restlessness, discontent and unhappiness among people are largely due to the widening drift between Man and nature. This detachment from nature makes man snobbish and narrow minded in his social life and also he becomes intimate and living with the plants man is apt to develop a sense of oneness that plants and animals are neither adversaries nor tools which are there just for his use, but are as much as part of nature as the human beings are. This realisation will teach him tolerance and love as also contentment and happiness and enables his thoughts and actions. Plant collections from different countries all the world over develop world contact and wider outlook. The garden also develops aesthetic sense in men who is often dwarfed and stunted by the ugly realities in life. It develops taste for having home gardens which have refreshing effect on the mental and moral sense away from the worries of the life in a busy city.

Therefore, Botanic Gardens should be deemed as necessary for prosperity and happiness of community and none should grudge the expense required to maintain them and on the other hand they are worthy of encouragement and full support. It should be highly gratifying to learn that the Govt. of India, fully realising the value of such gardens, is contemplating to start and maintain Botanic Gardens in every state.



Brindavan Gardens - Public Park

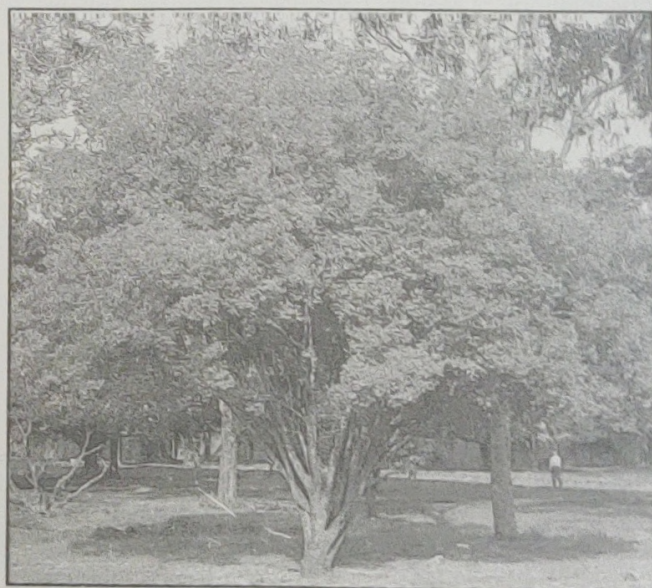
THE LALBAGH BOTANICAL GARDEN



Topiary Garden - Lalbagh

The Lalbagh has completed one hundred and thirty-four years of its glorious existence. This Garden has been the hub of Horticultural activities in the state ever since it became the State Botanical Garden in 1856. For the increase of the plant wealth of the state and development of Horticulture and well being of the people in general, it has made invaluable contributions. This historic garden by its unique achievements in many and varied fields has won a proud place among the gardens of the world and has come to be regarded as one of the best gardens in the East for its lay-out, maintenance, scientific interest and scenic beauty.

The total area of the garden at present is about 240 acres, and the land gradually slopes from east to west. There is an open rocky elevated portion in the east on which is situated the Kempegowda Tower, one of the four towers constructed by celebrated Kempegowda. The rocky portion also extends a little to the south, forming quarries to the east of the Lalbagh tank



Arboretum - Lalbagh

situated in the south of the Lalbagh area. The chief source of water for the garden is the Lalbagh tank, from which water is pumped to the reservoir on the rock, from where the water is supplied to most parts of the garden.

Aims

The aims of Lalbagh and the lines on which the chief works that have been accomplished and are being pursued may be broadly enunciated as follows:

1. To serve as a means of introducing new plants of Botanical, Economic and Horticultural interest and their acclimatization and propagation.
2. To aid the development of the Horticultural industry in the state.
3. To serve as an important centre of dissemination of scientific, technical and popular information about plants and their culture, including the offer of regular courses to those interested in Horticulture.
4. To serve as an increasingly valuable adjunct or supplement to Nature study and Botanical work in local schools and colleges.
5. To become a centre of investigation in pure and Applied Botany.
6. To establish as a place of beauty and to provide healthy recreation to the public, develop the aesthetic sense among the people, and give encouragement and assistance to home gardening.

Treasure House of Plants

In keeping with the objectives of a Botanical Garden, a great number of select plants from different parts of the world have been brought together and displayed in the garden. The Economic garden, the Fruit garden, the Arboretum, the Herb garden and various others, and minor sections like the Magnolia lawn, Hibiscus lawn, Cupress lawn, Ficus lawn and many other sections that make up the garden, have a very rich collection of flora under cultivation. Palms, conifers, giant bamboos, orchids, and thousands of other plants have made it a veritable treasure-house of plants. Organised introduction of plants and exchange of plants with other institutions in India and abroad began as early as 1856. Much valuable work in this direction was done especially during the times of William New (1858-64), John Cameron (1874- 1907), and during the time of G.H.Krumbeigel (1908-32), as a result of which the garden now stocked with representative plants of many parts of the world, both tropical and sub-tropical, so that the garden is a delight to both Botanists



Pandanus Grove - Lalbagh

and Horticulturists. In 1918, the plants were labelled for the first time. Cameron also collected animals for the garden, and Lalbagh was a zoo as well for some years, but by 1933, all the animals were transferred to the Mysore Zoo.

Economic Work

Remarkable work has been done in the introduction of Horticultural and Economic plants yielding industrial products like fibres, resins, gums, dyes, tans, oils, scents, timber, rubber, fodder. Suffice it to mention a few examples of fibre yielding plants like the American aloe, Sisal hemp, Ramie, Manila hemp, kopak, oil-yielding plants like kachi grass, khus grass, Lemon grass, the Cananga oil tree, Egg-tree, and fodders like Rhodes grass, Elephant grass, Lucerne, Cowpea, and a number of others. There are almost countless number of trees of economic importance.

In the case of fruits and vegetables, the garden has done pioneering work in the introduction, acclimatization and propagation of many varieties. How important this work of introduction is for the development of the Horticulture industry can be gauged from the fact that many of the Economic crops under cultivation are of foreign origin. The so-called English vegetables like cabbage, knol-khol, carrot, onion, potato, tomato, beans, peas, turnips, spinach, etc. are spread and become so popular that they have almost become indigenous. Hundreds of improved and superior varieties of these vegetables have been introduced from different countries from time to time for commer-

cial cultivation, thus producing better and more nutritious food.

Lalbagh has ornamental garden plants, viz., creepers, shrubs, trees, aquatics, palms, aroids, ferns, cacti and succulents, etc. The garden possess a rare collection of Bougainvilleas, Crotons, Hibiscus, Cannas and others, in addition to rare and beautiful flowering trees such as Tabebuias, Brownias, Saracas, etc. Mention may be made of the white Bougainvillea, introduced from Trinidad in 1952, and another variety called Mary Palmer which bears good-sized bracts of three colours, white, pink and mixed, which is a great Horticultural curiosity. Many showy flowering trees have spread to other parts of the state in lakhs and are found embellishing public parks and highways and the premises of schools, hospitals, travellers' bungalows and other government and public institutions.

Lalbagh has a very big nursery where lakhs of genuine fruit plants, economic and ornamental trees, avenue trees and flower and other ornamental plants are propagated every year and are supplied to the public throughout the state and to various parts of India.

Centre of Horticultural Education

The garden is visited every year by hundreds of students belonging to local schools and colleges for Botanical study, materials for study is collected by them. Lalbagh is a "must" in the list of places to be visited during the study tours undertaken by Agricultural students of various colleges all over India. In recent years, Lalbagh has given incentive to the development of school gardening in the state by providing plant material and all necessary technical assistance, such as laying out, planting, etc. To research scholars and to those who are engaged in other advanced studies in Botany and Horticulture, Lalbagh is a great source of material. Lectures on scientific and horticultural subjects and Horticultural film shows of high educative value are arranged frequently in the garden.

Heaven for Gardening

As a beauty spot, Lalbagh has only few rivals in India. Bountiful Nature has provided an excellent setting and ideal climate for making this garden the loveliest and best of its kind. The science and art of gardening is exquisitely brought out in nearly 240 acres of ground, with various garden features like extensive lawns, shrubberies, hedges, flower beds, plant houses, arches, trellies, etc., most attractively laid out, including topiary garden, Japanese garden, rock gardens, etc.

The aesthetic aspect of the garden received special attention during the time of G.H. Krumbeigal (1908-1932), who laid out many sections like the Statue garden and others. All the year round something of interest to garden lovers will be found in this Paradise. In summer, when the lawns are not so gay, the tropical summer flowering trees, shrubs and creepers lend great beauty and charm to the garden. The immense Glass House, which was built about 1890 on the model of the Crystal Palace of England, and whose roof consists of several hundred panes of glass, is a centre of attraction. During Horticultural shows, held in August and January every year, the garden becomes a paradise of beauty, a variegated floral pageant against a background of green lawns, attractive annual beds and sky-touching Cook pines. The delightful avenues, well laid out lawns and charming shrubberies of this sylvan retreat gain the admiration of all. These Horticultural shows, held in Lalbagh for more than a hundred years are unique in India and have served to educate and inspire people to higher Horticultural conceptions.

The exhibits that enter the competitions reveal standard of pot culture rarely to be found elsewhere in India, which is the result of the stimulus that Lalbagh is providing. The abundance of scintillating home gardens for which Bangalore is so famous, owe not little to the Lalbagh.



Library - Lalbagh

ANTIQUITY OF HORTICULTURAL SHOWS AND ZOO IN LALBAGH

Vemagal Somashekar



Marshal Zukhov, Defence Minister of U.S.S.R. at Flower Show in Lalbagh Glass House - 1956

A British officer, Major Waugh, known to be a reputed botanist was incharge of Lalbagh and the Lalbagh was his almost personal property. He nurtured its growth in several phases. He gifted the garden in the year 1819

to the Governor-General *Marquis Hastings*, who brought this garden directly under the control of the '*Botanical Garden of Calcutta*'.

Certificate of Appreciation

1958



International Flower Show, Inc.

NEW YORK

awarded to

Mysore Horticultural Society

for

Tuberose and Jasmine Garlands

SECRETARY

E. R. Haee

CHAIRMAN

W. R. Rogers Jr.

Fifth Annual Flower Show at New York - 1958. Over three million blossoms were on display at the world's largest department store, during Macys Fifth Annual Flower Show at New York. The Mysore Horticultural Society had participated in the show and got the award for the floral garlands. Photo above shows the appreciation certificate received by the MHS. Photo below shows the colourful Indian display at the flower show.





Colourful Annuals at Flower Show in Lalbagh



A Lady Chief Guest Viewing Indian Floral Art at Flower Show

During the period between 1836-1842, this garden functioned as a branch of the Agri- Horticultural Society of India and it was converted into an experimental garden. Many new vegetables and flowers were introduced and nursed at this garden. The changing patterns and varieties at this garden influenced the local peasants, as they used to call this garden as 'English Garden'. With a main idea of exhibiting its rich treasure of flowers and plants, the '*Horticultural shows*' were contemplated by the authorities. This has also been testified by the reports given by William Munro, the then Secretary of the Agri- Horticultural Society of India. But, it did not immediately materialise.

Around 1856, *Sir Mark Cubbon*, the then Commissioner personally supervised the growth and development of Lalbagh and converted Lalbagh into '*Government Botanical Gardens*'. In 1858, one eminent botanist, William New was appointed as the first Superintendent of Lalbagh. William New had the rare qualification of being trained earlier in the *Royal Kew Garden* at England and as such he used his talents for the alround development of Lalbagh.

HORTICULTURAL SHOWS:

In 1866, the Agri-Horticultural Society of India once again planned to hold the Horticultural shows at Lalbagh. Hence, a special committee known as "*The Bangalore Horticultural Fete Committee*" comprising of ten senior British officers was formed. The Committee was headed by a president and also had a working secretary. One British officer, Major General Hayes, was the president and J. Puckle was the working secretary. Some prominent members of the committee were Major Sankey, the then Chief Engineer of Mysore, L. Rickets Esq., the then Inspector General of Forests, Dr. Oswald, Superintendent of the Bangalore Museum, Dr. Henderson, William New, the then Superintendent of Lalbagh and many others. The committee made public requests for financial aid to institute prizes to be given at the Horticultural shows. It was also decided that in the beginning 100 prizes for the best fruits, flowers and vegetables to be instituted. The committee formally decided that the show should be held towards the last week of January 1867. But, finally the committee successfully held the first ever *Horticultural show* in the Band Stand area on 16th February 1867. This was called Band Stand because earlier Military Bands were played in this stand on week ends and holidays. The chief prizes were awarded to native gardens for the best collections of fruits, vegetables and flowers. Subsequently, the second *Horticultural show* was held on the 31st December 1867. Later in the following years, September 1868 and February 1869, third and fourth shows were held. This was altogether on a large scale than the first and the admission was by tickets, which were purchased by all classes with great enthusiasm. During the Second show in 1867, a dozen packets of fresh English and Italian seeds were presented instead of cash awards. In the year 1869-70, two exhibitions were held on a large scale in Lalbagh at Bangalore. Interestingly, the exhibitions included cattle, sheep, poultry, farm produce, silk, cotton, cereals and country breed horses, all strictly Mysore grown. In the beginning two shows were held one in January (Winter Show) and the other in August or September (Summer Show). Even now, the same tradition is prevailing. Continuously year after year the Horticultural shows were conducted and the number of people visited very much increased. During the year 1873-74, under the Supervision of Lieutenant Col. Puckle, an officer whose name is associated with many useful works in Bangalore, a show was held at Lalbagh. All other towns like Madras, Poona, Calcutta, Simla and Ooty had only one show in a year. It is only the Lalbagh, Bangalore, which is able to conduct

two shows a year and on one occasion it held three shows.

Growth and Popularity

In the inter-national Horticultural field also, Lalbagh has made a name of repute. In 1881, Lalbagh for the first time participated in the London Exhibition. There the authorities of Lalbagh exhibited 24 wooden models of Indian fruits and vegetables. Such shows were also subsequently organised in other countries as well. The annual exhibitions held hitherto at the Band Stand and its surroundings were frequently threatened by rain as well as the heat of the summer. Hence, small tents were erected in the precincts of the Band Stand in 1882-83 for arranging the Horticultural shows. In the year 1884-85, due to the scarcity of tents special recommendations were made for the erection of a permanent structure for holding the flower shows. John Cameron, the then Superintendent of Lalbagh, took the initiative and prevailed upon the then Maharaja of Mysore, Chamarajendra Wodeyar and sought his permission for the construction of Glass House in 1889. Thus, a beautiful Glass House came into being on the model of crystal palace of England. The prince of Wales laid the foundation stone of the Glass House. Earlier it was called "Albert Victor Conservatory".

In January 1891, the Horticultural shows were held in the Glass House for the first time. In 1876-77 and 1892-93 due to droughts the Lalbagh shows were limited to one show. Later in 1898, as the city was affected by plague the Horticultural shows did not take place continuously, but only intermitent shows were conducted. The flower shows were once again continuously revived in 1906 on the visit of the Prince of Wales and during that year a special medal was also instituted in the name of the prince. This golden medal was called 'Prince of Wales Medal'. From the year 1908, children were allowed freely to witness the Horticultural shows at Lalbagh.

Modern Phase

Mr. G.H. Krumbiegal succeeded as the Superintendent of Lalbagh in 1908. He was responsible for the founding of "*The Mysore Horticultural Society*" in 1912. The society owes a great deal to him, for, as its Chairman he steered it through hard times and was largely responsible for its existence. He was nominated as a life member of the Society.



G.H. Krumbiegal, with his Wife and Staff

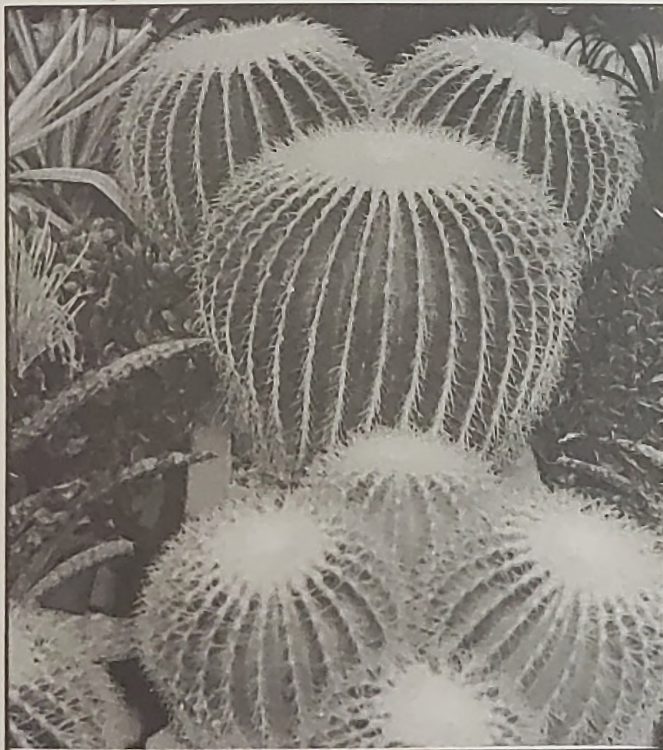


Vegetable Carving



Ikebana

DIFFERENT EXHIBITS AT LALBAGH SHOW



Cacti



Indian Floral Art

During 1912, in order to enhance the glamour of the Horticultural shows, Krumbiegal introduced a special 'Floral Bicycle Parade' for young girls. On this occasion, young girls dressed in different colours, took a parade on the floral decorated bicycles, was an added colourful attraction. Krumbiegal's twelve year old daughter Hilda Krumbiegal also took part in one such shows, says a record.

Gradually, the purpose for which the Horticultural shows were organised gained natural appreciation as well as the popularity among the people. Now, during every year, two shows are being regularly held so as to associate with the Republic Day (January 26th) and also on August 15th (Independence Day), which even today attract not only the local people but also the people from outside. The captivating panoramic scenes of the nature are brought live in the monumental Glass House with all the pomp and glory. This colourful reality of the man's understanding with the 'nature' is very well reflected here. It is a reality here that man has responded to the incredible challenge from the nature. The people of this once glorious 'Garden City' can still churn their nostalgic memories of the yester years by collectively participating in the annual Horticultural shows of Lalbagh.

ZOO IN LALBAGH

During his long tenure in the office, Cameron effected good measures to improve this garden. To him goes the credit of the conversion of Lalbagh into both a Botanical and Zoological garden. However, already in 1866 this Zoological garden was actually opened, many rare birds and wild animals were introduced for preservation. Among them was the full grown primitive ape or Gorilla called "Apeman", popularly. J.P. Sanderson, the then Superintendent of the Mysore Khedda operations and a renowned elephant hunter, had secured a male 'orangutang' from sumatra. L.Rickets, the then Inspector General of Forests in Mysore State, a close associate of Sanderson and a lover of Lalbagh, had secured the orangutang to the Zoological garden of Lalbagh. Thus in October 1891, the authorities of Lalbagh purchased this orangutang for a sum of one thousand rupees. This literally enhanced the prestige and popularity of the Zoo at Lalbagh and gradually attracted visitors. With the result, on an average thousands of people visited Lalbagh daily as per the annual report (1891-92) of Lalbagh. Earlier, only about hundreds visited Lalbagh dally.

Playful 'Apeman'

The new 'Apeman' had thus became a rare thing, especially for the rural folk. People from surrounding villages of Bangalore started pouring into Lalbagh. 'Orangutang' was a soft natured sociable animal which used to entertain the onlookers by a variety of its prank games. It was during this peak season that the construction of the famous 'Glass House' or 'Exhibition Building' was also completed. As the authorities of Lalbagh found it difficult to control the increasing number of visitors, they requested for a platoon of police force for the purpose in 1892. Two monkeys were added subsequently to the Lalbagh Zoo. During the same year, near the 'Lotus Pond' in Lalbagh, another small building called 'Monkey House' was also built in order to house this Apeman and the monkeys. Since then, they became a great attraction at Lalbagh.

As years rolled by, the Apeman attracted many visitors who liked his pranks. Many a time, the monkeys also obeyed the command given by the delighted onlookers. Normally these apes were given fruits, boiled rice, bread, sugarcane, cucumber, etc. In 1892, one wooden perambulator was added to the zoo, costing twenty rupees. This enabled the orangutang to play with it, pushing it all over the area. Later, a pulling wooden (small) cart was also added to this group of toys for the Apeman. All these things provided immeasurable entertainment for the visitors.

Ape's Farewell

The Apeman at Lalbagh did not last long. After seven years of its entry stay here, the animal died of acute diarrhoea in April 1897. On hearing the death of the orangutang, Cameron, who was on an official tour, is said to have returned to Lalbagh and grieved very much as he loved it dearly. After several hours of death, the dead body of orangutang was shifted to the Bangalore Museum. There the animal was given to a taxidermist, in order to enable its preservation.

But, Cameron, did not approve the work of the taxidermist and summoned one 'Van Ingen', an expert taxidermist at Mysore, in order to correct the specimen. But, Van Ingen also was helpless in the matter, as evidenced in the Annual Report (1897-98) of the Museum. Further, we do not know what happened to the whole thing.

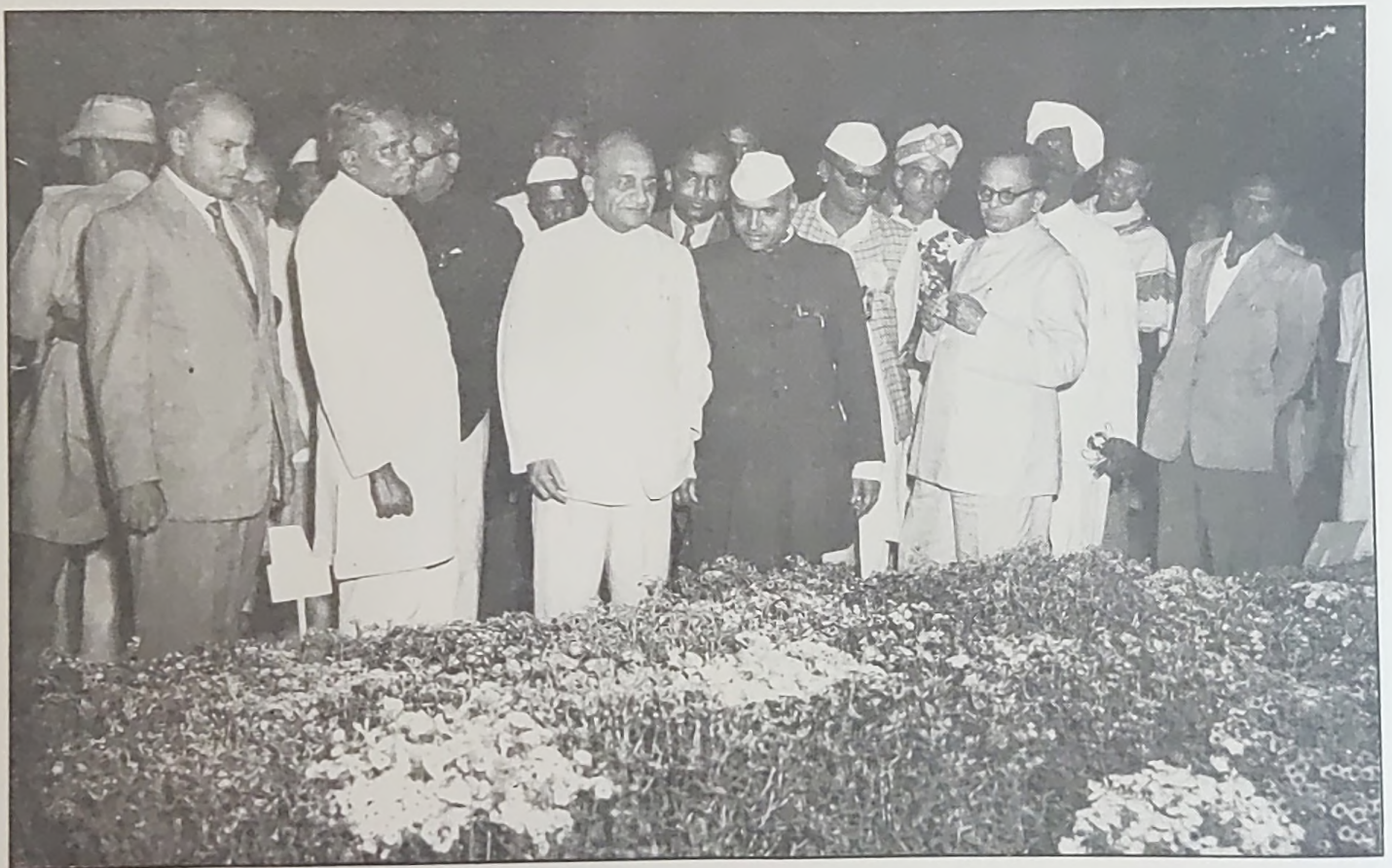
Zoo Before 1920:

Till 1919, Lalbagh was popular for its good zoo. But in 1920 and later, some of the big animals of Lalbagh

were transferred to Mysore Zoo. Only a few birds, rabbits and pigeons were left in the zoo house at Lalbagh. Presently, only the 'Deer Paddock', exhibiting only a partial glimpse of the past glory of Lalbagh zoo is seen. The old Pigeon House (constructed in 1892) is still found without the humming sounds of the birds near Deer Park. It is described by the Lalbagh authorities that after 1920 the animal population of the Zoological garden at Lalbagh started dwindling, mainly on account of the changed policy of the Government to concentrate more on the Mysore Zoo. The sad story of the Apeman and other wild animals at Lalbagh makes one feel that at least now the Lalbagh authorities will bring in some animals and birds to help children to entertain themselves and play with them at Lalbagh.



Deer Paddock in Lalbagh



Dignitaries at Flower Show in Lalbagh



People Throng into Glass House during Flower Shows

MY BYGONE DAYS IN LALBAGH

C.J. Devanath
Ex. MLC, Mysore

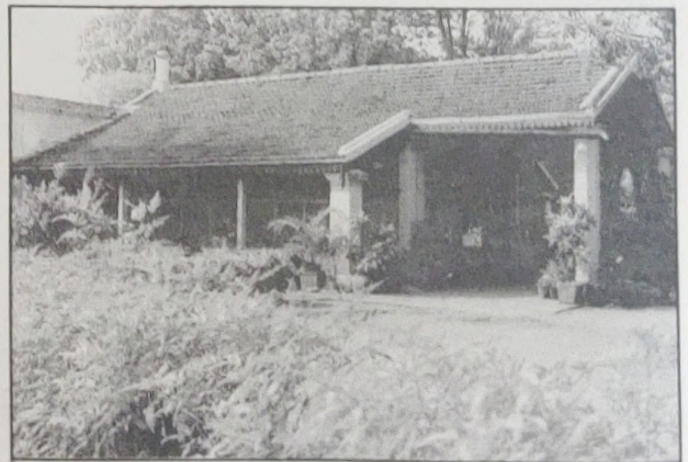


Gardeners at work in front of Darwinia, Lalbagh, 1930

I am one of the fortunate few, who had the privilege of living amidst the serene and beautiful surroundings of the world famous Lalbagh, during the days of its old, imperial charm. This was possible because of my father, Sri H.C.Javaraya, who served at Lalbagh in various capacities, including that of the Superintendent of Government Gardens and Director of Horticulture.

I was born and brought up in Lalbagh. I lived in Lalbagh till I completed my intermediate. Along with me, were my two elder brothers Late C.J.Padmanabha, IAS, Late Captain C.J.Ramadev, the famous cricketer and sportsman; and a younger brother Dr.C.J.Bhaktaram, a noted cardiologist, now practicing at Bangalore.

It is indeed my good luck and pleasure to write about my experiences of the childhood days at Lalbagh and



Lalbagh House

also about the various interesting happenings that occurred during those bygone days.

European Life-style

During the early twenties, the atmosphere and the life style in the Lalbagh was predominantly influenced by the Europeans. Since Mr. G.H.Krumbeigal, the then Superintendent of the Government Garden, himself was an European. When I was a small child, we were living in the *Lalbagh Cottage*, which was surrounded by a vast garden. This cottage was meant for the 'second person' in the hierarchy of the Lalbagh administration and in this cottage I was born.

When I was a small kid, a maid servant used to look after me and take me on rounds in a nice and big pram. These pleasant outings amidst lovely surroundings of Lalbagh and chirping of the birds, was a pleasant experience in my early childhood. I grew up along with the trees and shrubs in Lalbagh.

Sri. H.C.Javaraya, was a strict and disciplined officer, because he was trained and worked with high ranking Europeans, especially the Britishers. It was, therefore, quite natural that he brought me up with a lot of dignity and discipline, largely in the European style.

As children, we used to be sent in a nice "dak cart" to Fort School, where I got my primary, secondary and high school education. I was wondering why my father used to send us to school in this horse cart when all others used to go to school on foot. This facility was rather a high privilege during those days, and was normally meant for the elite in the society, which used to be none other than the Britishers themselves. It took me a long time afterwards to understand that both Mr. Krumbeigal, as well as my father, were getting the carriage allowance; and it was, therefore, compulsory for them to maintain the horses and carriage.

Childhood Merriments

Since the Lalbagh garden was full of trees, shrubs and climbers, it was a blessing for we children for playing countless types of games in it, the common ones being "hide and seek", "paper chase", "monkeys on the tree", etc. So joyfull were those days; I cannot just forget even after several decades have rolled off since then.

During those old days, there used to be hardly any aeroplanes, and spotting them in the sky was a thrilling experience. Occasionally, we used to find them in the skies of Bangalore. Unlike the present day planes, the planes of those days were almost midget in size. There was also a facility at Bangalore to take the



Lalbagh Cottage

people for short-rounds on such midget planes, on payment of Rs. 5-00 per head, which was an expensive experience during those days. Thus, most people used to enjoy watching them flying in the skies. Whenever we heard the sound of an aeroplane, we used to run up to the Kempegowda tower on the big rock and used to see the aeroplane coming down to the ground near Agara village, where the aerodrome was located.

During our leisure time, we used to wander in search of wild berries and fruits in Lalbagh, and during those days the garden was abounding in them. We used to collect a lot of them and enjoy their exquisite taste. This still makes my memories sweet.

It would be incomplete if I do not mention about the great havoc the monkeys used to play during those days in Lalbagh. I must write about the herds and herds of monkeys that were dwelling in the huge bannan trees, from main gate to the Bannerghatta circle. They even used to break the branches and jump on the roof and thus breaking the tiles. They also used to steal away the food. We also used to chase them with stones and sticks.

Gardening

Since we were living amidst plants, we naturally acquired love and affection towards plants and a sense of appreciation of nature and its beauty. When we were small children, we used to observe the garden work carried out by the malies with curiosity.

During vacations, our father used to send us to the garden nursery to learn the gardening works under veteran gardeners and headmaistries. We actually used to work like any other malie and this taught us with almost all the details of garden works. We also got training imparted by Mr. Thomas Royar, the plant

propagator at Lalbagh, who had rich experience in gardening and upkeep. He had a very good grip on the nursery and was quite efficient in his works. We were lucky to be trained by such a knowledgeable man. Often we used to voluntarily work in the nurseries. At that time there were plenty of fruits and berries in Lalbagh, and after working in the nursery, we used to pluck them. This act, I had felt, was justifiable, for we were watering them regularly. A young mali boy was my garden-mate and I was finding pleasure in assisting him in watering plants; of course, without bringing it to the notice of my father.

We also used to grow countless kinds of fruits, vegetables, flowers, etc, in our kitchen garden and we used to enjoy them by eating. Thus, we became experts in all kinds of garden work during our childhood days.

The Case of a helpless Ostrich

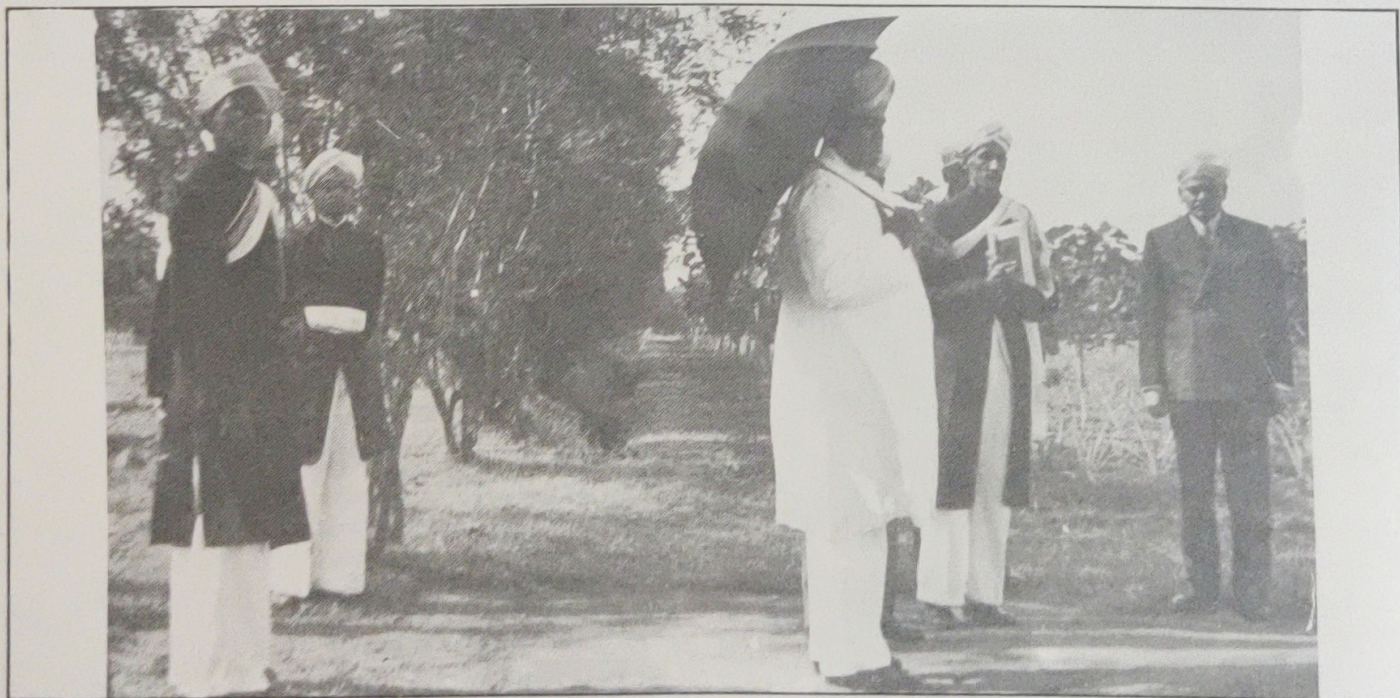
During my childhood, an interesting incident occurred in Lalbagh aviary. One Sunday morning, five-six European boys jumped over the fence and caught hold of a poor Ostrich, and snatched away lot of its valuable feathers. The Ostrich started screaming at high pitch. The watchman posted there ran to Sri Javaraya and narrated the matter. He ordered that the errant boys should be caught at any cost. Many watchmen ran after them and ultimately caught and

produced them before Javaraya, who directed them to be locked up for the rest of the day. Mr. Krumbeigal came to know about this, but he did not interfere. When we boys asked our father why he did not hand over them to the police; he said, the police will be hesitant to tackle the Europeans and the culprits will get off without any punishment. So, my father kept them in lock-up till the evening and let them off only when their parents came and apologised for their sons acts. By this incidence, we can make out how strict and disciplined were those days.

Amusement and Sport Facilities at Lalbagh

During the early twenties, Lalbagh was both botanical as well as a zoological garden, and it was quite a common scene to witness a number of animals and birds displayed in cages. The wild animals such as Tiger, Leopard, Bear, Lion, Fox, Jackal, Orangutang, Kangaroo, and a number of other animals and birds were found. Most of these animals were housed near the lotus-pond. The visitors to Lalbagh during those days used to get thrilled by wild animals and the children used to feed them with nuts, vegetables and fruits.

The orangutang at Lalbagh was very clever. When ever we give an orange, it used to peel off the skin nicely like human beings and eat it. It also used to enjoy the smoke when cigarettes were given.



Field visit of His Highness Jayachama Raja Wodeyar to Fruit Research Station, Hessaraghatta - 1942



H.C. Javaraya leading Viccrine and her Staff at Flower Show, in Delhi, 1934

At Lalbagh, near the 'Deer Paddock', one can see a circular, holed structure; and it served as the 'dove-cot' during those days. A number of native doves used to dwell there. Apart from this, there used to be found a number of other birds such as Peacocks, Fowls, Parrots, Lovebirds, Minahs, etc., displayed in cages. One could also see the reptiles such as snakes, pythons; and others such as rabbits, Guinea pigs, and deers. The sight of all these birds and animals was lovely; but soon we came to know the shocking news of their transfer to Mysore Zoo. We, all youngsters, felt very sad and sorry as we could no longer have the company of these friends. The parting of these animals created a kind of vacuum in our young minds for a long time, and it took quite a long time to forget this incidence and reconcile for their disappearance.

In the Lalbagh, we used to play cricket on the lawns, and tennis in the tennis court by the side of the Lalbagh Cottage and Lalbagh House. Volley ball and other games were also used to be played by us and the staff of Horticultural Club in Lalbagh:

Social and Cultural Activities

Like in the present times, in the olden days too, the Lalbagh was the venue for various social and cultural activities. Many such occasions used to render festive look and gay atmosphere to the entire garden.

One such interesting event used to be the *annual get together* of the Kodava families. Once a year, they used to celebrate this at Lalbagh, by taking special permission from the Superintendent of the Lalbagh gardens. It used to be a pleasant sight to see Kodava men, women and children in their colourful costumes, dancing, playing games and participating in various games. Since my father had a lot of kodava friends, we also used to participate in the function.

During those days the *poultry show* along with the *flowers shows* used to be held at Lalbagh, regularly, every year. In such shows, the best Hens, Cocks, Turkeys, Ducks and various kinds of fowls used to be displayed. We, as small children, used to be astonished by the variety of birds that used to be on display. Twice my mother won two silver medals (first prizes) for her birds.



Fairy Fountain inside the Glass House - 1930

Like the *birds show*, the dog show also used to be held at Lalbagh. There used to be no limit to our happiness whenever such shows used to take place. We used to acquire high spirits by participating in such shows.

My account of shows and festivals at Lalbagh becomes incomplete if I do not describe how the *flower shows* used to be organised on a very grand scale. Normally these shows used to be held twice a year. Some times, the *special flower shows* used to be arranged in the event of visit of top dignitaries such as *Viceroy, the Maharaja of Mysore*, etc. During those times, the whole Lalbagh and more particularly the Glass House used to look like a "dream land"! The preparations for such shows used to commence months in advance and all the concerned in the Lalbagh used to work with dedication for the success of the event. Many such shows are still green in my memory! The sincere efforts of the Lalbagh authorities used to receive rich dividends in terms of high applause and praise by the *people of Bangalore city* and its roundabouts. During these *flower shows* the prizes used to be given to the successful participants. I still remember one, by name, Mrs. Cowdrey, an English Lady, used to bag almost all the first prizes, year after years. One Mr. Tirumala Rao used to secure many first



Jayachama Raja Wodeyar at Fruit Research Station, Hessaraghatta - 1942

prizes. There also used to be a high competition for table decoration during the *flower shows* and my mother used to be successful in that for some years.

During the twenties and thirties, the *British Resident* of the *Mysore state* used to visit the flower shows. During the flower shows, there used to be a grand musical performance by both the English and the Mysore bands. The English Army Band from Cantonment also used display its performance during the show times. For this purpose only a beautiful *Band stand* was built in front of the Lalbagh Glass House, surrounded by the lush green lawns, on which the public used to sit and enjoy the musical performance. In the Band stand, weekly band displays used to be arranged.

The Unforgettable "Darwinia"

Now, I am going to narrate the pride and fame of the Lalbagh restaurant housed in Darwinia building, which is of course not in existence now. This cottage like building, named "*Darwinia*" by my father, stood on the site where the "*Centenary Garden*" is located now. The fame of this restaurant had spread throughout the kingdom of Mysore. Many dignitaries used to make

frequent visits to Darwinia. It had beautiful climber clad pergolas and pendals in the front, over looking the sunk garden and huge Javafig trees at the back. The proprietor of this restaurant was one Mr. Narayana Rao. The Dosas (South Indian dish) from the restaurant were the much sought after stuff in the entire *Bangalore city* during those days. Dosas used to be served to the people sitting on the lawns, under pergolas and also to those in the cars (Which were quite rare during those days). Even the 'Gosha' ladies also used to visit the restaurant and eat dosa under the shade of the huge Java fig trees. The glory of restaurant lasted for several decades. Unfortunatley, neither the Darwinia building not those classical Java fig trees exist now; only the memories have remained with the people belonging to the old generation, like me! It is great pity that the Darwinia was pulled down and the lovely huge Java fig trees were felled.

Memorable Structures

In the year 1932, my father, Mr. H.C.Javaraya, assumed the post of the Superintendent of the Government Gardens, later upgraded as Director of Horticulture, in the then princely state of Mysore, and discharged the duties therein for a long period of 12



Lord Irwin, Viceroy, at Flower Show in Lalbagh - 1923



Felicitation given by Mysore Horticultural Society to H.C. Javaraya on getting the title 'Rao Bahadur', on 3rd March 1941.
Photo shows a Freize of Glass House at Background

years (upto 1944). During his tenure, many remarkable works were executed at Lalbagh, and some of them are noted here-under.

The eastern wing of the Glass House was erected during the year 1935. In contrast to the original structure, the added structure was fully indigenous. The entire structure was manufactured at Mysore Iron and Steel Ltd., Bhadravathi. This addition enhanced the beauty of the Glass House.

During the late thirties, the lantern shaped *Guard Tower* was erected at the Basavanagudi gate of Lalbagh. This structure was earlier formed the guard tower for the entrance of "Poorna Prasad", the residence of Dewan P.N. Krishnamurthy, at Bangalore; and the entire tower was literally transplanted at the Basavanagudi gate. Thus, I can confidently say that this was the first building to be transplanted in the entire Karnataka. The full credit of this goes to Mr. H.C.Javaraya. His skillful effort also won the appreciation of Sir Mirza Ismail, the then Dewan of Mysore.

An artificial cascade was made with great effort and labour near the lotus pond, which added charm to the vicinity. It was inaugurated by Mr.K.V.Anantharaman, the then Minister for Revenue and Horticulture.



H.C. Javaraya with Sir Mirza Ismail



A View of Lalbagh West Gate with Guard Tower

Apart from the above, a number of lawns and avenues were newly formed in Lalbagh. The notables among them are: *Lovers avenue*, *Cypress avenue*, *Mango avenue*, *Cassia avenue*, etc. Extensive planting work was also undertaken along the western boundary of Lalbagh. Some new area was also added to Lalbagh on Siddapur side.

The entire credit of founding of *Maddur Fruit Orchard*, and *Ganjam fig garden*, goes to Sri Javaraya. During his tenure only, the *Government fruit Research Station* was set up at Hesaraghatta, by funds of the *Imperial Council of Agricultural Research*. The apple cultivation around Bangalore was also revived during his times.

Awarding of "Rao Bahadur" Title to H.C.Javaraya

Sri H.C.Javaraya was also looking after the affairs of the Marketing Department as its offices were also located at Lalbagh. He was also the first Chief Marketing Officer of the Mysore State. Later he was sent to Delhi as the Chief Marketing officer by the Central Government, where his jurisdiction was the entire Imperial India (1933-1938). During his stay at New Delhi, apart from attending his duties, he organised the flower shows for the first time. He guided the local



Inaguration of Artificial Cascade at Lalbagh - 1942

people and the florists as to how the shows have to be conducted on the lines of the shows that had already become regular features in Lalbagh, Bangalore. The Delhi flower show won the appreciation of the Viceroy of India. It was for all these remarkable services, the Viceroy conferred on him the coveted title "Rao Bahadur". On his return to Bangalore, a grand felicitation function was arranged to honour my father at Lalbagh, which was presided over by the then Dewan of Mysore, Sir Mirza Ismail, and attended by many ministers, top officers and elites in the state:

Noble were those Bygone Days

During those days, there were not many cadres and officers, but the few who were there were well-informed, disciplined and highly dedicated ones. The efficiency was at its peak and the quality of the workers was unquestionable. The males and head maistries used to work hard and honestly. The higher-up, were like the grinding-stones and hard-taskmasters, extracting full work from the sub-ordinate staff. Regular and thorough inspections were the special features of the administration. The functioning of the Department was very strict and well disciplined. There was no room for political influence and non-official influences or communal bias. Hardwork was the only ladder on which one could go high in the administration. There was no tendency of creating posts to oblige relatives or friends. Malpractices of any kind were totally unheard during those good days!

Although, the salaries were meagre, the officers used to be perfectly satisfied and worked wonderfully well. Any kind of frustration was not experienced by any one. In the Department of Horticulture, there were personnel belonging to all communities who used to work in perfect harmony and peace. The understanding among the various cadres was perfect and strong. The top officers used to be so well disciplined that no force or temptation could shake them. The men in the Department were known for their modesty.

During Javaraya's tenure, some of the note-worthy officers were: Mr. Nanjappa, the Curator at Mysore, Mr. Papanna, Mr. Rudraiah, and Mr. Dejushetty as overseers; Mr. Y.N. Krishnamurthy as draftsman; Mr. Thomas Royar, as plant propagator; Mr. Gurunathan, as photographer; Mr. Venkatarangaiah, as accountant. There was one Mr. Arunachalam, whom all used to call the "Charlie Chaplin" of the Department!.

The Unforgettables!

I cannot forget the remarkable service rendered by the servant folk. I still recollect the dedicated and humble services of servants, who made our childhood-life comfortable and pleasurable, through their hard-work and affection. We are really indebted to all this servant folk.

Thus, we were born and brought up in Lalbagh, and we grew with the trees and people therein. The good were the days and so were the people; and because of this, the younger days passed off with pleasure and happiness. Now, several decades have lapsed and the time has engulfed many lives and structures in Lalbagh, but as long as the sweet memories are with me, I cannot forget anything and any one! Whenever I unfurl my memories, I still see and enjoy the vivid picture of happenings that took place long long ago. I feel such happy memories are my real assets. Here, I recollect a relevant phrase: "Things grow dearer as we grow old, it is the rust we care for, and not the gold!"

I am ever grateful to my parents and even more to Almighty, for the comfort, love and happiness they showered upon me during my childhood and younger days, in that wonderful, sprawling beautiful garden - Lalbagh and the lovely homes therein!



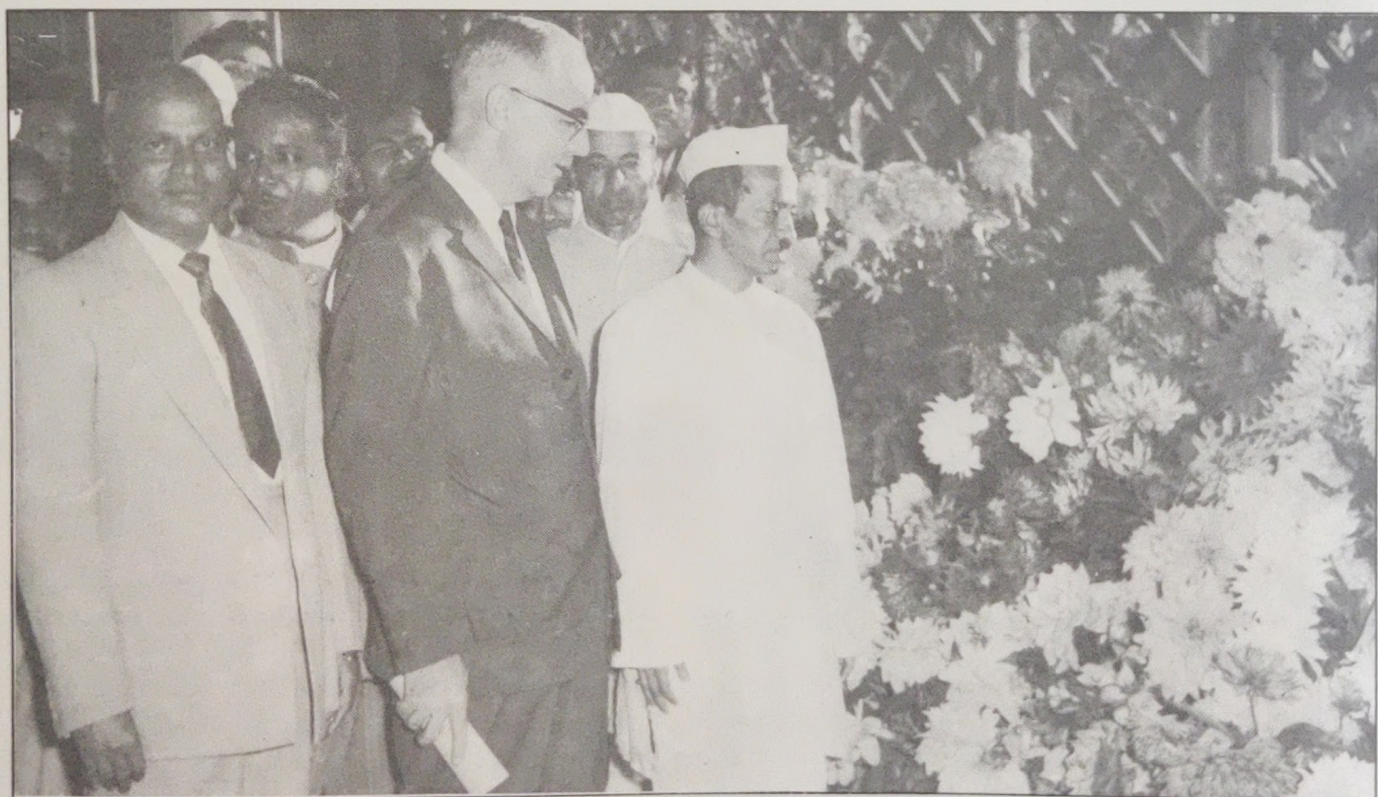
A Stately Red Silk Cotton Tree Against the Morning Sun



A view of 'Attara Kacheri', the seat of the Government of the then Princely State of Mysore with vast landscape garden, figuring prominently with elegant trees such as Araucarias, Schinus molle, Castenospermum, and dominated by the equestrian statue of Sir Mark Cubbon, the Chief Commissioner of the Mysore Kingdom (1834-61). The magnificent building and its grim surroundings remind us of the authority of the past 'Colonial Days'. (Photographed around 1900).



S. Nijalingappa, Chief Minister. Unveiling Lalbagh Botanical Garden Centenary Memorial, 1957.

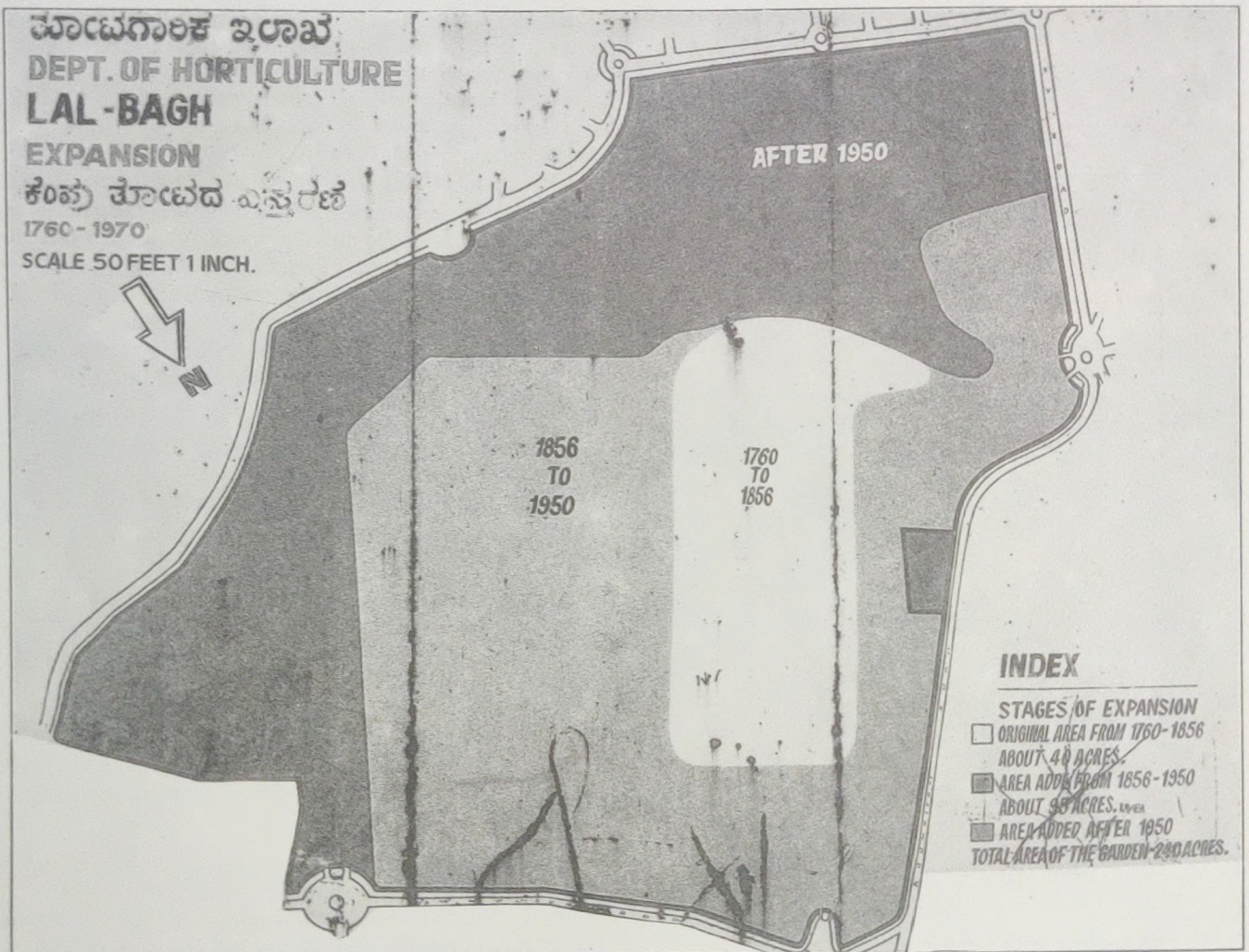


B.D. Jatti, Chief Minister, at Lalbagh Flower Show, 1961.

MAN AND PLANTS - AN INSEPARABLE BONDAGE

Dr. M.H. Marigowda,
Former Director of Horticulture,
Bangalore.

- The Value of Trees
- Development of Horticulture in the State
- Thoughts on Food and of Food



The Map of Lalbagh Showing Periodical Expansion of Area

THE VALUE OF TREES

Since the origin and during the course and processes of evolution of life, the plants have evolved and designed themselves so as to assume the basic role of hosting for all other lives on this planet of ours.

As we become more and more civilized, we become also more and more dependants on plants and plant-products. "Look after the plants and plants will look after us", must be the slogan of every civilized man.

The plant wealth is the basic wealth on which man's existence on this planet is possible. And hence, man's poverty or his discomforts, are directly proportionate to his incapacity to exploit scientifically the plants and plant products to overcome his poverty or discomforts.

Whether man exploits plants and plant products, bee-like or Loranthus-like, is up to him, and he cannot either increase or decrease the intrinsic values of plants.

It is said, that, all other things being equal, the people who eat "better food" will inherit the earth.



Rajiv Gandhi, Prime Minister,
planting a sapling in Lalbagh - 1983

All "better foods" will have to come directly or indirectly from plants and plant-products alone.

These are all some of the basic relationships between plants and human affairs in any country, any where in the world.

All of us have gathered herewith the human-awareness that man alone should protect environmental factors for his own survival sake, and it is more so on the part of urban-man, for the ecological balance which exists in unmanned nature, loses its balance in manned cities, where the recycling capacity of nature is no more possible.

Flowering Trees in Bangalore

Once the salubrious climate of Bangalore city was very conducive to sub-tropical, tropical and even some temperate flowering plants. The city was then a jungle of trees, not of concrete. Visitors called it "a city with natural air-conditioning" and a "fan-less city". In fact, in the middle of the 19th century, the then Director of the Paradenya Garden in Ceylon, even recommended that Lalbagh, be converted into an intermediary nursery garden in South India for introducing plants from the world over. By then, the Botanical Garden in Calcutta, the Paradeniya Garden and the Botanical Garden in Singapore were active in that work, subserving the Royal Botanical Gardens at Kew. Lalbagh was thus converted into a Botanical Garden in 1856.

Botanically, all trees flower. Those which bear colourful and conspicuous flowers are called flowering trees. They are planted in cities and towns to enhance the beauty of avenues, parks and gardens. The total effect is termed as the "landscape".

Each region in the world has its flowering trees of pride, just as we have the "Pride of India" and the "Flame of the Forest". The varieties may be over 3000 in number. The finest of them may be 800 numbers. Edwin A. Menninger has a manageable list of about 500. Bangalore can boast of 100-200 exotic varieties, in addition to our own. Among them, a few bloom throughout the year, though most flower only in the summer months. Hence, Bangalore's landscape is always enchanting.

From the point of view of the city's landscape, the year can be divided into four quarters starting from January, though because of the wide variations in the duration of flowering. Some overlapping is inevitable. Also, some tropical trees flower as they like. For instance, Jacaranda, brought under the first quarter con-



Queen Elizabeth II, at Lalbagh - 1961





Smt. Indira Gandhi, Prime Minister, at Lalbagh - 1973

tinues to bear stray flowers even in the second, because its duration of flowering is long. But the duration of its first quarter partners, the yellow-flowered. *Tabebuia spectabilis* and *Tabebuia argentic* is hardly a week.

The first quarter (January to March), winter and later summer is dominated by blue and yellow flowers. The large Jacaranda a native of South America and the West Indies, bears trumpet-shaped purple-blue flowers in January and February. Stray flowers appear even in March and April. It is common in the city as avenue tree. The Jacaranda dominates the first quarter. *Tabebuia argentic* and *Tabebuia spectabilis* of South America also bear very showy yellow flowers, after shedding their leaves. The period, however lasts hardly a week. In addition, there is a long-duration tree of African origin *Dolichandrone platycalyx* with yellow-bell-shaped flowers in big clusters.

In the second quarter, the pride of place is the common, umbrella-topped *Delonix regia* of Madagascar. It bears gorgeous crimson or scarlet flowers in profusion. As the tree is dwarf with many branches, its attractive flowers become its enemy. It is perhaps the

most mishandled during its blossom period. It is also called "May Flower", as it is in bloom in May.

Matching its scarlet flowers is *Peltophorum inerme* with spikes of yellow flowers above its dense green foliage. After the yellow flowers drop, the spikes are covered with copper coloured pods, which last for two-three months. It is an object of tropical beauty. During the times of Dewan Sir Mirza Ismail, many roads in Bangalore were planted with *Peltophorum*.

Riot of colour

It is in the second and third quarters-the early summer and summer months of April to September-that Bangalore is a riot of colour. The multi-coloured, peacock-shaped "May Flower" and the yellow spikes of *Peltophorum* are joined by the equally long-duration and conspicuous cherry and crab-apple like flowers of *Cassia* varieties, the scented white, red, pink and yellow flowers of the pagoda tree (*Plumeria*) and the white, tubular, scented flowers of the tall and majestic Indian Cork. During this period, the "Flame of the Forest" (*Butea frondosa*), *Erythrina*s, the short-dura-

tion Pallida (*Tabebuia megapotamicae*), the Bombax species, the giant cannon-ball tree (*Couroupita guaianensis*), the "Pride of India" *Lagerstroemia flos-reginae* and its brother *Lagerstroemia speciosa*, are also in bloom.

In the fourth quarter-October to December-the African tulip (*Spathodia campanulata*) blooms. Green finger-sized buds emerge at the end of leafy twigs. Their split and brilliant scarlet flowers resembling tulip pop out. Its duration is one or two months. This tree, from Uganda, may also bloom in any month and even produce two or three flushes.

There are also *Acrocarpus fraxinifolius*, the "Guest Tree" (*Kleinhovia hospita*), with bright pink flowers and *Tabebuia avellandae* of South America, that bears purple flowers.

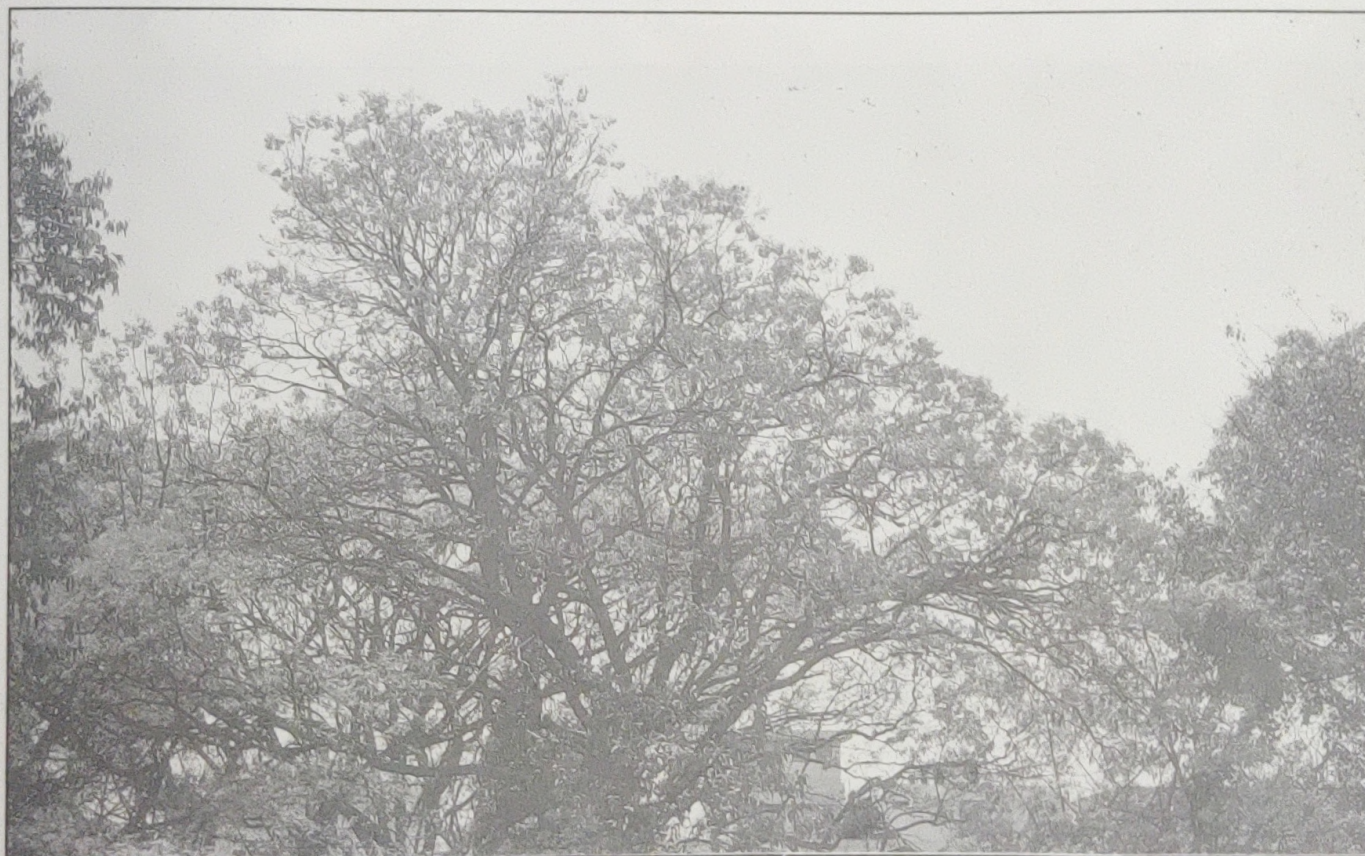
Lalbagh gems

Though Bangalore can boast of the largest number of exotic, tropical flowering trees many of the gems are in the well-protected Lalbagh.

Some of the best flowering trees in Lalbagh are:

Amherstia nobilis, a native of Burma, named after Lady Amherst, wife of the then Governor of Burma, has been described as the "Queen of Flowering Trees", and the "Finest Flowering Tree. It has blossoms which look like humming birds, each mounted on a slender wire and all tied into a long drooping cord. The blossoms are scarlet, and the foliage, especially the new shoots, are delicate and soft. There are only two trees in Lalbagh. They hardly set seeds. A couple of plants raised many years ago were taken away by Sir C.V.Raman for planting in his institute garden.

Of the four *Brownea* species, all natives of South America, the queen, "Rose of Venezuela" (*Brownea grandiceps*) is in the garden. The pink flowers are like a beautiful bouquet prepared by the tree to offer to Nature. *Brownea rosea*, another most graceful big tree with a round top, stands adjoining the centenary garden. The flowers, as the name suggests, are pink-rose and in clusters. *Brownea ariza* a native of the West Indies is called the "West Indian mountain rose".



Jacaranda in Bloom

Brownea kewensis a hybrid raised in the Kew Garden, London, is also in the pot nursery.

Its red flowers at the top gives the impression of an inverted umbrella frame. It generally flowers in mid-summer.

Sterospermum chelonoides (Padri in Kannada) bears an abundance of fragrant purplish flowers in July-August. It is a night bloomer. The long trumpet shaped flowers cover the ground every morning.

The Pink Cedar (*Acrocarpus fraxinifolius*), the largest deciduous Indian tree, is a blaze of scarlet in November-January. The footpath of the outdoor nursery has a long row of these trees. The tree in bloom against a blue sky is an unforgettable spectacle.

The Ashoka (*Saraca indica*) is a favourite flowering tree of India. It is in full bloom from April to June. The flowers are brick-red. In *Saraca declinata*, the blooms are yellow.

Millettia ovalifolia, a native of Burma, bears magenta-rose flowers.

Pachira, a native of the West Indies and South America has flowers with long crimson petals and white stamens. The trees are in the arboretum.

The Indian Dillenia bears fragrant Magnolia-like solitary white flowers at the end of the twigs. It generally blooms in June. There is one tree in Lalbagh. There is a lone "Pride of Bolivia", in the Magnolia lawn. A recent immigrant, it is evergreen and fast-growing and ideal for avenue planting. It bears bright yellow butterfly-shaped flowers.

Magnolia, a close niece of our Champak, grows well in all South Indian hill stations. There are many species, but the magnificent one is *Magnolia grandiflora*, with lotus-like white flowers. There is one tree in the Magnolia lawn.

The Champak (*Michelia champaka*) is tall, evergreen and quick growing and is planted throughout the tropical belt. It is known for its exquisite fragrance. Sir Miza Ismail, the then Dewan, planted an avenue with Champaks in Malleswaram and called it "Sam-pige Road". I do not know why we did not follow his example. If we had, Bangalore would have been "a scented city".

All of us want that Bangalore should remain beautiful, as it is an urban social necessity. The values of trees and the necessity of their protection need no emphasis. Beauty is a positive aim and hence living trees



Spectacular Golden Yellow Flowers of *Tabebuia argentea* Trees in front of City Railway Station Greet the Arrivers to Bangalore City.



Vast and well laid out Formal garden in front of High Court



A portion of the ornamental parapet wall encircling the 'Band Stand Garden'



Millettia ovalifolia in Bloom

are a necessary part of beauty. Trees are an integral part of Bangalore the beautiful, but how to protect the existing old denizens of Bangalore and how to increase the tree wealths in the fastgrowing new areas of Bangalore are the main points before us. It is up to find out positive and practical approach to these burning points which are staring at all the elites of Bangalore.

MAINTENANCE OF TREE WEALTH IN BANGALORE

Urban tree planting involves a pattern of functions, aesthetic appearance and safety. Tree will have to live in harmony along with telephone poles and telephone wires, light-poles and light wires, buildings, compounds, and with several gates and entrances. Hence, the urban planting is more complicated compared to forest planting. In urban tree planting, the selection of trees to serve function, aesthetic appearance and safety, is of paramount importance and not just a tree. "Easy to grow" or "easy to raise" or "easy to get from Forest Department" are not the criteria for urban tree planting. It is not just a stereotyped raising of trees in the forest and left to them-



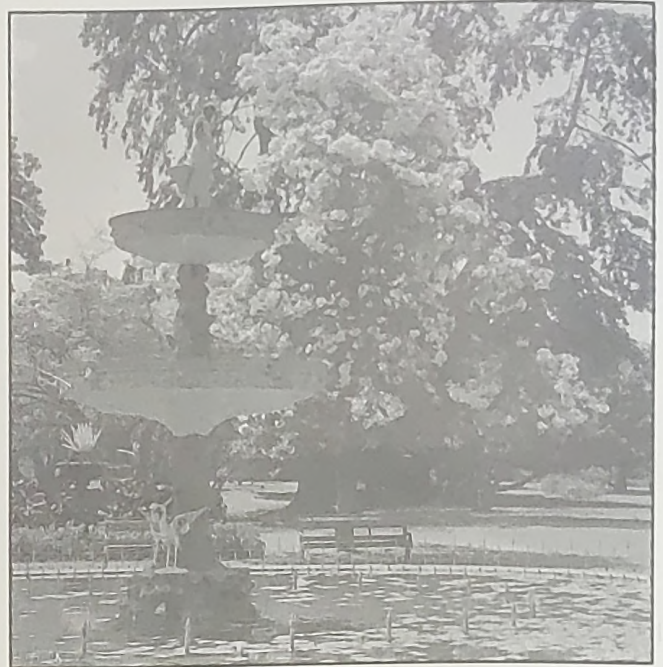
General Cariappa at a Flower Show in Lalbagh

ves for full maturity before they are felled. Trees for landscaping the parks and gardens in the city; trees for avenues of different roads and streets in the city; trees for within the bungalow and without the bungalows; trees for public buildings etc., trees for all these locations and situations in the city are to be selected not only for their proper function and appearance, but also for the safety of the man and his property. If we commit any mistake, it is our fault; "the right tree" in "wrong location" or "the wrong tree" in a "right location". This should not happen. One must know the intrinsic nature of the tree, its habit and form at maturity. The man wants to make use of the tree in the city and the tree is not making use of the man of city. He alone must select the trees for his own utility and for his own safety.

With all these and with other things in views, I want to make the following suggestions:-

Surgical Tree Maintenance Squad:

All the avenue trees of Bangalore are under the control of the City Corporation of Bangalore. According to age, Banyans, *Ficus mysorensis*, Mangoes, *Ficus religiosa*, Bassias, Tamarinds, Eugenias, etc. are the



Tabebuia argentea in bloom at Lalbagh (planted by Jawaharlal Nehru)

oldest and most common indigenous species; most of



Cassia in bloom at Cubbon Park

them are beyond repairs and further, they are not suitable for city avenues. As we all know, these were once avenues of approach roads of Bangalore. Now, Bangalore has grown and spread in leaps and bounds. Approach roads are within the city boundaries. All of them require replacement. Java fig trees are giants among trees and they are good only for boulevard avenues. The Java fig of St. Marks Road require immediate attention and some of them could be saved. Rain trees and *Peltophorum* are the majority avenue trees in Bangalore, but most of them are partially damaged and we should put all humanly possible efforts to repair, to rejuvenate and to maintain; and hence tree surgery is necessary to rectify the wounds, broken branches etc. and attention must be given immediately to these trees: Gold mohur - are soft wooded but pretty flowering trees. These are variously damaged and they require attention to repair and to reshape; but some of the old trees which have developed heavy roots (buttress) require replacement. Mahogany (both micro- and macro leaved) are non-flowering foliage trees, well suited for city avenues and least damaged in Bangalore. *Kigelia pinnata*, Indian corktree, Neems, Alstonias, *Citharexylon*, *Polyalthias*, *Mimusops*, are also found as avenue trees in Bangalore. *Spathodea*, *Colvillea*, which are very common-

ly seen in Mysore city, are not found so commonly in Bangalore as avenue trees. Recently, *Jacaranda* and *Cassia multijuga*, are planted as avenue trees in Bangalore in new extensions.

For ages, almost all the trees of Bangalore have been mutilated in one way or the other. If not by man, storms, winds, rains and old age have all damaged the trees. Big urban avenue trees are more vulnerable for the action of the wind during rains and storms. It is not to argue on the causes of damage, but to approach in a practical way to rectify the mutilated part and save the tree. This should be done by the City Corporation of Bangalore. So, the City Corporation of Bangalore must set up a Surgical Tree Maintenance Squad immediately to attend to these denizens of Bangalore.

Urban Tree Nursery

The most beautiful flowering trees like *Cassia javanica*, *Cassia marginata*, *Cassia nodosa*, *Cassia renigera*; *Cassia fistula*, *Cassia multijuga*, *Barringtonia*, *Bahunias*, *Erythrina*s, *Cochlospermum* (Yellow flower in August) *Dolichandrone*, *Kleinhovia*, *Tabebuia avellanidae*, *T. argentea*, *T. spectabilis*, *T. rosea*, *Sterculea colorata*, *Jacaranda*, *Plumuri*s,



Lagerstroemia speciosa at Lalbagh (Planted by Krushov of USSR)



Tabebuia argentea in bloom at Guttahally Circle

Flowering Eucalyptus, Lagerstroemia, Butea, Saracas, and what not, almost all the best flowering trees of the world are found in Bangalore and none of these is found in Bangalore avenues. Bangalore occupies the pride of place as far as flowering trees are concerned. We have trees that will flower from January, through all months to December;

It is foolish to plant ordinary Eucalyptus only because of the reason that, it is easily available from the Forest Department, when there are most beautiful flowering Eucalyptus. The flowering Cassias are not planted, since they are not easily available. It is high time the urban tree nursery is started. If one takes into account the money spent on tree guards for decades in the Corporation, it runs to lakhs and lakhs, whereas, for their tree maintenance, not even in hundreds; so it is not the money in the way of - developing an urban tree nursery, but something else. The Corporation must start a few urban tree nurseries. Further, Bangalore is unique, in having a Nurserymen Co-operative Society and it is only one of its kind in the country. The basic profession for the development of Horticulture is nursery profession. The Nurserymen Co-operative

Society could be co-ordinated by the Corporation and encourage them to raise "the difficult to raise" tree kinds like Cassias, Araucarias, etc. Urban tree nurseries are necessary not only to supply grown up trees to avenues, but also the flowering plants for beautification of Bangalore.

Apply Bonsai Principles to Bangalore avenue trees.

Tree planting and their maintenance is a science by itself. Trees have their individuality, habits, forms and whims and fancies. Like children, trees left to themselves, behave sometimes erratically. Hence, trees should be controlled, disciplined and maintained. In city avenues, the crown should be controlled, the shape should be as we want and not allowed to spread as it likes. Controlled tree, will live for ever like Bonsai plants. Bonsai principles are just to keep the tree ever in youthful condition and not to allow it to become old. For this purpose, pruning techniques of avenue trees must be standardised. After the tree is planted in roads and streets, the training and pruning must be done periodically as per the standards of

Eye catching Flowers of *Tabebuia avellanae*



pruning. It should be followed by plant protection. This becomes periodical function of the Squad every year, so that the crown remains within certain boundary and then alone the living trees can exist in harmony with other inanimate subjects like light pole, telephone pole, private compound, etc. Since, the crown is ordered to behave and remain within a limited aerial space by pruning and checking the growth, the tree will be in safe and manageable form. Hence, top the lopsided branches and manicure them gently to make them young; but this must be done by the Corporation Squad with know-how.

Equipments and tools for Surgical Tree Maintenance Squad

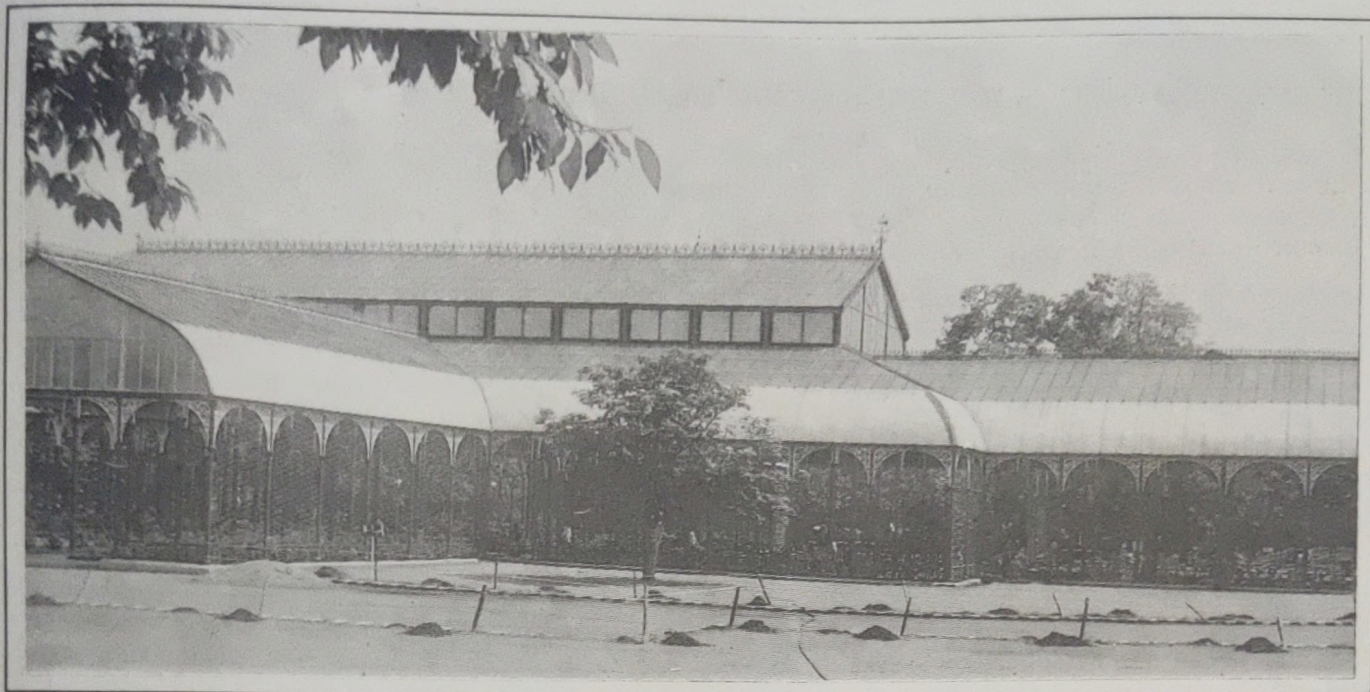
Equipments: A jeep or a truck fitted with telescopic ladder with safety belt, etc., so that the worker should be able to use his hands freely. Tree climbers safety belt, with hooks attachable to the branches etc., so as to allow the worker to be able to use his hands freely.



Cassia renigera in Bloom



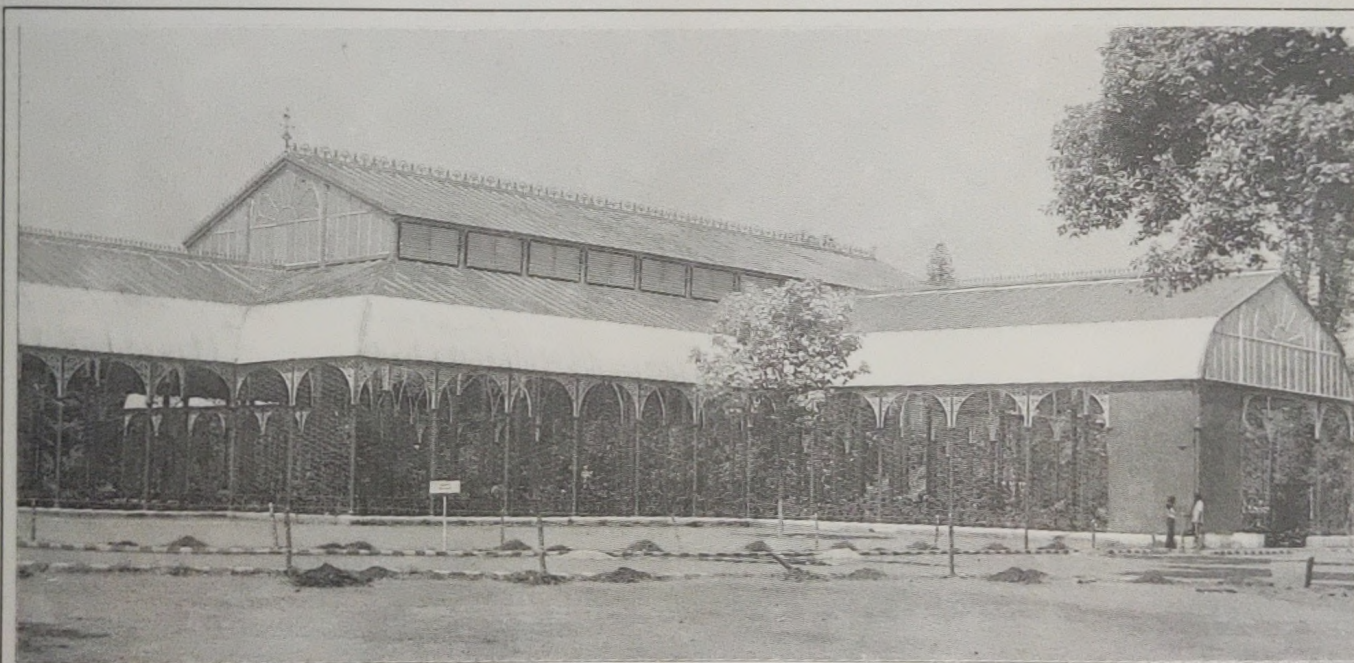
A Bonsai tree. *Cassia marginata*, at Lalbagh



Southern View of Glass House

Tools: Carpenters chisels of different sizes, hammer, files of different size, Hand saws of different sizes: wire brushes of different sizes, hatchet, chopper, pruning knife; secateurs etc., plant protection kit, with all the

plant protection chemicals, wax, paraffin, tape, brushes, etc.

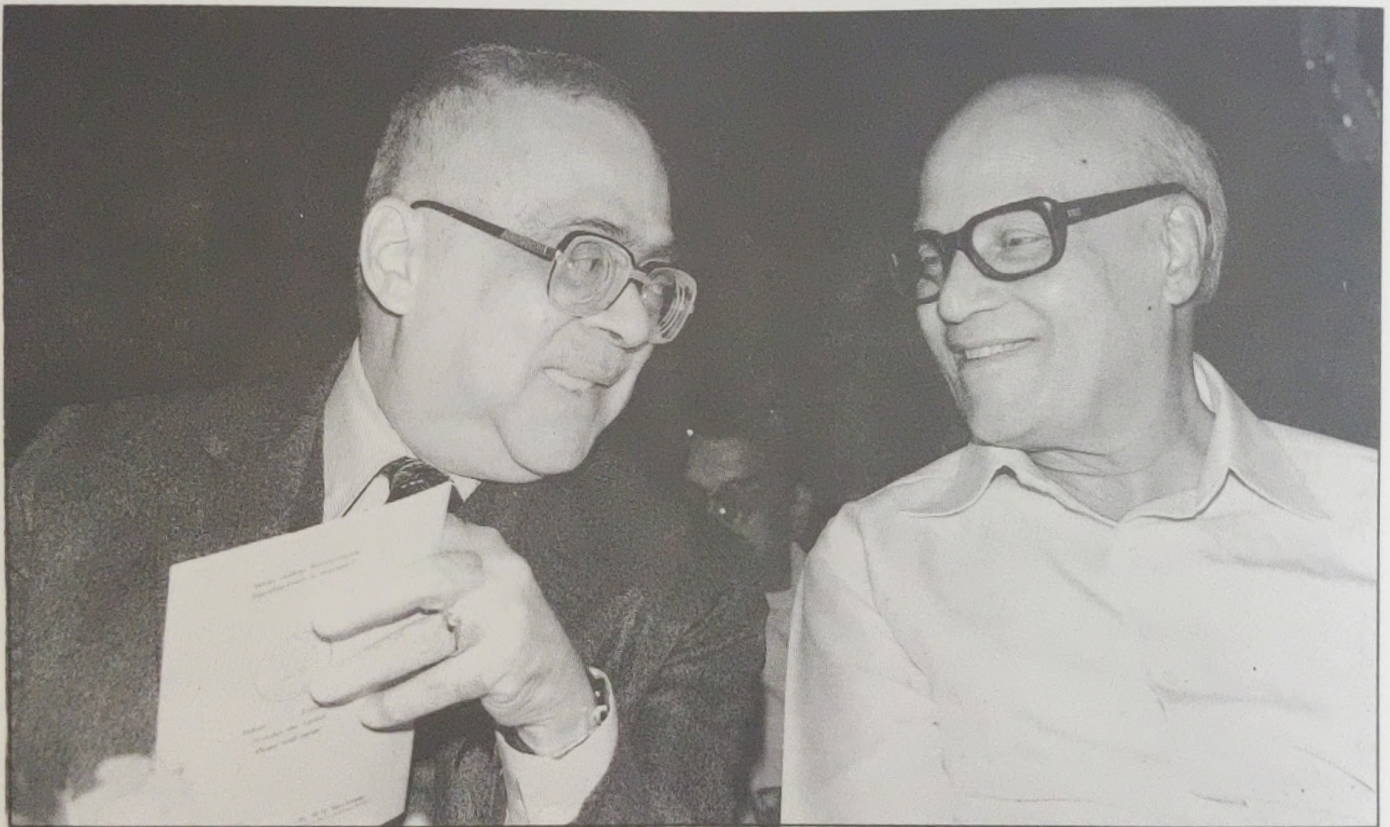


Northern View of Glass House

STALWARTS WHO MADE BANGALORE BEAUTIFUL

At left is Mr. Laxman Rao, who served as the commissioner of Bangalore City Corporation for many years. During his tenure as corporation commissioner, he took initiation for laying out gardens and parks in the Corporation area. He made efforts to beautify the Bangalore city by planting flowering and shade trees. He is much adorned by the people of Bangalore.

At right is Dr. M. H. Marigowda, a celebrity in the field of Horticulture development in the State. He served as the Superintendent of Government Gardens during the early part of his career, and as the Director of Horticulture later. During his tenure, the area of Lalbagh has been expanded from 120 acres to 240 acres, he started 350 Horticultural farms and nurseries in the State. He has become talk of the rural families in the country side of the State.



N. Laxman Rao and Dr. M.H. Marigowda in a joyous moment



National Grape Show held at Glass House - 1973



National Banana Show held at Glass House - 1973

DEVELOPMENT OF HORTICULTURE IN THE STATE

A Four-Limb-Approach to Sound Development in Horticulture

The prosperity of any nation depends primarily upon the capacity of its people and their constant efforts to exploit nature and its resources. Plant wealth is the most basic resource of all; and the efforts of the people are of paramount importance in that direction.

Man's effort can be either constructive or destructive. For proper development of society, while ensuring its peace and plenty, it is the constructive effort which is of vital necessity.

Along with horticultural science and technology, man must develop and acquire what is called 'the sixth sense of Horticulture'. A person imbibed with that spirit looks upon nature as an open book of horticultural knowledge. To such a person, nature helps acquire an extraordinary insight into the mysteries and processes of the world of plants and the person so placed could be a humble gardener, a cultivator, a florist or a specialist holding a big official designation. At least, I have realised this truth rather intuitively.

(i) Whenever any person gave me a jack fruit to eat, I would take care to preserve its seed, if it were an extraordinary one. Many times I had been ridiculed for this.

(ii) On tours in the State, I looked upon jacks, mangoes, Jamuns, wood-apples, aegles, as yet unexploited fruit wealth; their vast potentiality appeared to me as a vision.

(iii) Over 390 Horticultural farms and nurseries that are now flourishing and covering all parts of Karnataka, may be considered as bold ventures of phenotype collection of fruit plants.

All these fruit-plant-materials from different parts of the country and from different sources were collected in each farm and in each nursery, spread over all parts of Karnataka, for the purpose of cultivation under identical conditions and for the purpose of observation of their performance, for years, since they are perennials and variously time-bound in growing and in yielding. It is time, now, for the Department, to mark-out "Mother-progeny" for each cultivar, in each farm and in each nursery. Here after, any fruit-plant of any kind multiplied and propagated by anybody in any parts of Karnataka, should be from these known and identified progeny source. And it is the greatest service a horticulturist could render to his people, to his state and to his country. This as aim and purpose, all my ventures were all based upon "my pure open-book-

knowledge of nature". Now, all the future "Model-Orchards" in Karnataka must become "Progeny-Orchards" also for propagation of known plant-materials from known and identified progeny-plants for further fruit development in our Karnataka in particular, and in our country in general.

(iv) "Dry orcharding" notes were recorded only after the works were accomplished.

(v) If the East India Company had accomplished substantially in their collection of all the potential plant wealth of the world, in Lalbagh, it was mainly because of the unconditional love of persons for plants.

(vi) Great publications on horticulture in the United Kingdom owe their source to the academicians, researchers, and in no less measure to the stenographers and personal assistants attached to Directors of Horticulture, who also developed the appreciation for Horticultural glory.

(vii) God has created the land, and the plants are the gifts of God to mankind.

(viii) Man must develop land grow plants for his own sake. It is my belief that anyone who has to do anything with horticultural sciences and technology, must follow the law of nature of plants with the sixth sense of horticulture. Against this background, and the administration of Horticulture Department, (based on man-made laws, rules and regulations), I could serve the people, exploiting plants and plant products for the best benefit of human society. It is absolutely necessary to know the following, for real success in horticulture.

For convenience let us list them out briefly

1. Thorough, but updated 'know-how' of how to grow plants.
2. To use plant and to exploit plant and plant-products.
3. To know 'how to save plants'.
4. Grow-well, use-well and save-well of all plants scientifically, should be the basic motto required for a progressive society.
5. 'Good foods' come from horticulture.
6. Other things being equal, people who eat better foods inherit the earth is an international axiom.

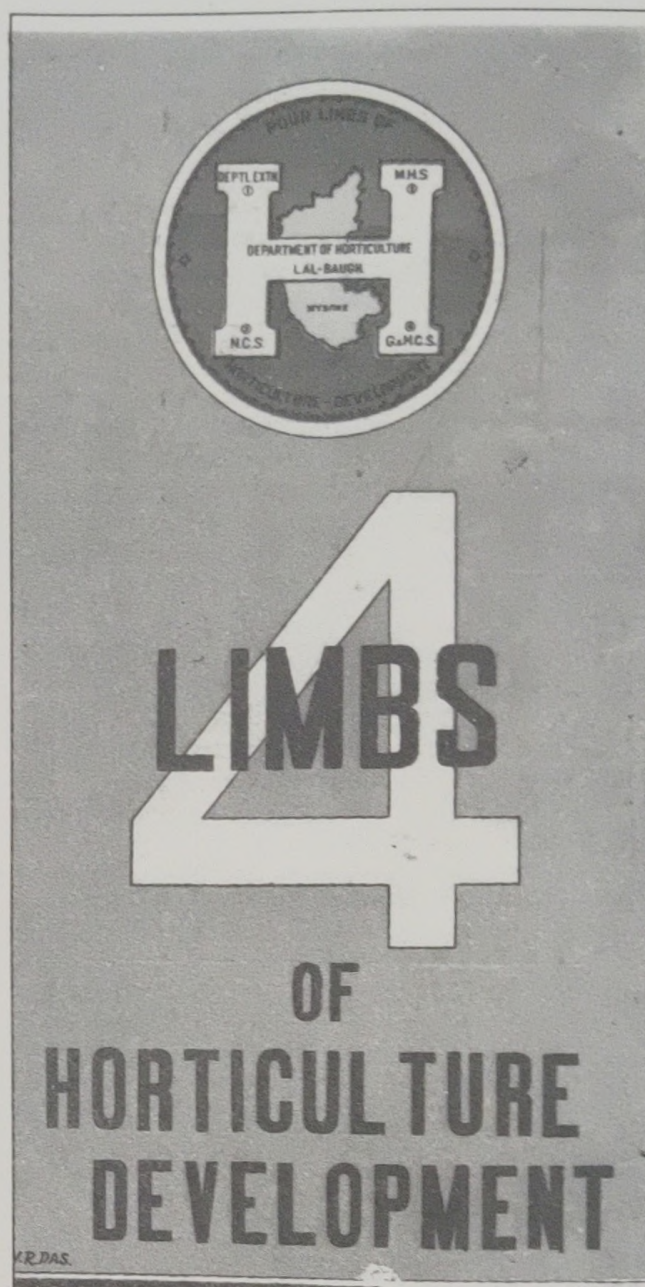
7. After the second World War, the horticultural products like fruits and vegetables have been considered as "Protective Foods"; and further, they provide also the "roughage", vitamins, minerals, enzymes, etc., required for healthy and efficient functioning of the body and mind.

8. After the second World War, both in West Germany and in America, a group of dieterians started slogans "Go back to the soil". Their idea was, instead of spending money on tonics, etc., one should grow fruits and vegetables on scientific lines, and eat them to get the required substances and nutrients such as vitamins, minerals, etc. directly from plants.

9. Boys and girls are told that health and beauty are not skin-deep; (a) So they must eat good greens for good skin complexion (b) eat vitamin 'A' rich horticultural products for bright and healthy eyes (c) eat calcium rich foods for good bones and sparkling teeth, and so on.

10. Even for proper birth control-based on Darwin's theory of the "biological principles", i.e. "adversity tends to breed" - advocated, "balance diet" - and balanced diet as we know, is made of horticultural products.

For around development of horticulture (the greatest ambition of my life), I strived hard to serve our people effectively, competently and scientifically. I conceived and adopted the idea of "four-limb-approach" for sound and balanced development of horticulture. The basic idea (say, for example, the cultivation of fruits and vegetables) - behind this "four-limb-approach" for horticulture is that scientific cultivation of fruits and vegetables alone is not enough by itself, unless scientifically grown fruits and vegetables are handled scientifically also; and more scientifically handled fruits and vegetables alone won't be complete by themselves unless they are used and eaten scientifically to become part and parcel of our body and life; scientific cultivation-scientific handling, and scientific use and utility form the parts of the integrated triangle of the life of man; and man's efforts should become totally beneficial to society; and this is possible only when one follows the integrated triangle, as said earlier-growing to eating, (utilising) all phases must be scientific. Just as voluntary and involuntary functions of human body are well-coordinated and interlinked, so should the main functions of the horticulture department be coordinated and interlinked in order that the department could serve the people effectively, competently and scientifically. So, I adopted the pattern of the "four-limb-approach" as interlinked totality, like the bodily functions for the full development of horticulture in the state. Fortunately, for me, horticulture has four



limbed "H"-Now let me dwell briefly on the functions of each limb as follows, symbolically as well as practically.

I. Limb One-Department of Horticulture (Scientific, technical and inspirational guidance, etc.):

The State Directorate of Horticulture, if Ialbagh be taken as its origin, is over two hundred years old with a tradition of its own: Its fundamental functions, broadly speaking, ought to include:

(1) Guidance and expert assistance through extension personnel;

(2) Acquisition of the methodology of Horticultural sciences, technologies and materials, from within the country and outside;

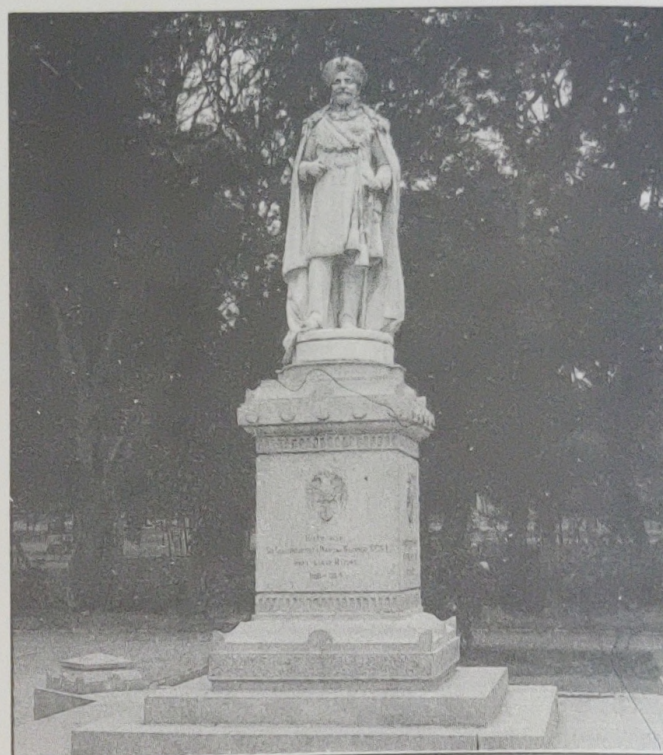
(3) Induction of the traditional as well as the basic methodology to Lalbagh: (a) Introduction (b) Acclimatization (c) Multiplication and (d) dissemination. This should be extended to all horticultural farms in the state, treating them as "Practical-know-how-acquisition-fields" and as "Store fields of seed and planting materials" of all Horticultural plants. In a nut-shell, "Take Lalbagh to the very doors of cultivators".

(4) Constant vigilance over all horticultural development in the country and abroad since Horticultural science and its technology (unlike physical and chemical sciences) throughout the world are considered as humanitarian sciences-and this is no secret. The Department need not bother about time and money, consumed in long-term fundamental research. Let others, who can afford both time and money do such basic research work, but the Department should be alert and watchful over the horticultural world.

(5) To keep an organic link with the other ancillary limbs of horticultural development ; and for this purpose, the Director of Horticulture (by designation should always be the President or Chairman) of the Four-Limb-organisation set up by the Department. To assist him in these onerous functions and responsible duties, the Joint Directors, directly responsible to him could be appointed as his Deputy (Vice-President or Vice chairman) to be the Managing Directors with executive powers to be incharge of these limb organisations on his behalf. The limb organisations should involve the majority of people, concerned with Horticulture, possessing love and aptitude for Horticulture.

II. Limb Two (Publicity, Propaganda and Education)-Mysore Horticultural Society

Before rendition, Lalbagh remained with the East India Company under Sir Mark Cubbon, the then Commissioner of Mysore. By that time there was an Agri-Horticultural Society in Calcutta. During Sir Mark Cubbon's time, an Agri-Horticultural society was also started in Bangalore to look after Lalbagh, but the Society had become defunct. In 1856, Lalbagh, became the Botanical and Horticultural Garden. "To educate the natives", W.New organised the "Lalbagh Show" around Band Stand at Lalbagh. During John Cameron's time, the Glass House was built for conducting "Lalbagh Shows". After rendition, the Lalbagh came under Mysore state. "To involve elites of Ban-



Statue of Chamaraja Wodeyar installed in Cubbon Park. The Glass House of Lalbagh was built during his rule in the year 1890

galore city" Krumbiegal registered Mysore Horticultural Society in 1912 under "Charitable Endowment Act". Now, it has been known as "Mysore Horticultural Society (M.H.S.)". It is a service organisation under "Endowment Act" and not a Co-operative Society.

When I took charge of the Horticultural Department in 1951, I first realised what was "to educate the natives" of William New and "What was to involve the elites of Bangalore City" of Krumbiegal; and I thought over, it occurred to me that if the East India Company could make use of Lalbagh to develop Great Britain, why should we not make use of Lalbagh to develop every family in every village in the state ? Literally, "I let go Lalbagh to every village in Karnataka". For me Lalbagh stands comprehensively for every thing, past, present and future development of horticulture, why not, then, take Lalbagh to every doors of the cultivator in Karnataka ? For this purpose, every Horticultural Farm, every Horticultural Nursery and every Horticultural Office in the state, must carryout the main functions of Lalbagh with love and devotion.

As I said this to myself, "To educate ourselves and to involve the people of the state", I decided to make M.H.S. statewide from Bangalore to Bannur, through all the District Head-quarters, Taluk Head-quarters, and Hobli levels in Bannur, including the other

Hobbies, involved in M.H.S. at Panchayat level, a ryots' horticultural service farm in Gamanahalli was started before I retired. Now is the time to develop at every Panchayat level "Horticultural Service Multipurpose Farms" to collect plant materials for demonstrations and practical education, and also cater to the Horticultural needs of each cultivator.

The main functions of M.H.S. have been (a) to popularise Horticulture among the people through horticultural shows (b) to educate the people through its journals, and other printed material.

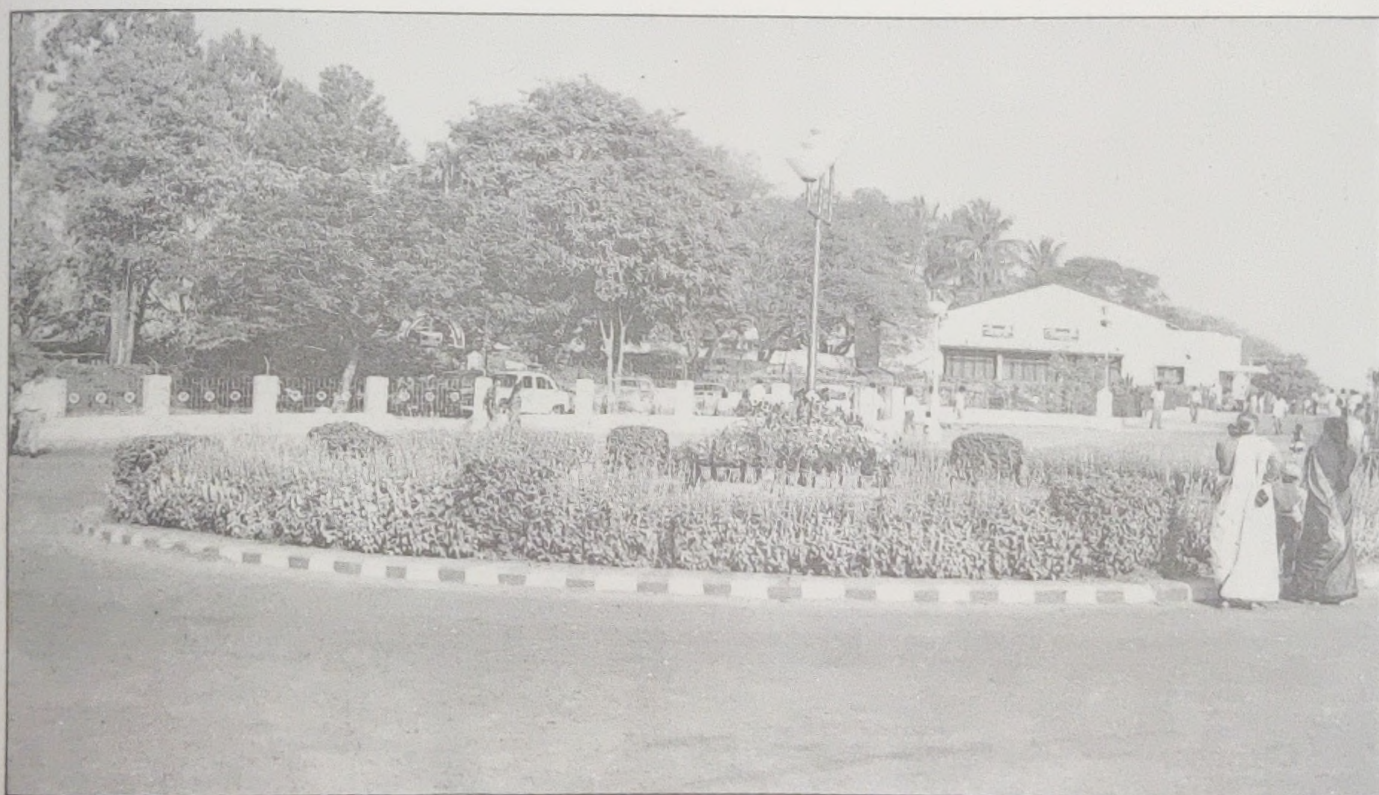
Independence Day, Gandhi Jayanthi, and the Indian Republic Day are important National Days. (The Kempe Gowda day is important, viewed from Bangalore). Fortunately, the Winter Horticultural Show and Summer Horticultural Show, held at Lalbagh, and fitted into Indian Independence Day and the Indian Republic Day. So the Winter Horticultural Show came to be called "The Indian Republic Day Horticultural show", the Summer one, "The Indian Independence Day Horticultural Show".

I conducted, under the auspices of the M.H.S., Ikebana training classes with the help of a Japanese lady. Both Ikebana and Indian Floral Art became part

of Horticultural Shows during my time, though the Shows turned a little-crowded !

Late Dag Hammerskjold visited Lalbagh Show in 1956 and he told me : "It is unique in the whole world, Mr. Gowda (Dr. M.H.Marigowda), all annuals, perennials, flowering shrubs, all grown in pots : which have so well synchronized and planned, all of them ready to bloom during a particular week, and twice a year, and I have not heard, much less seen anywhere in the world, such a Show except in Lalbagh !".

Dag Hammerskjold made me feel proud of myself and of my State. Then, I decided to concentrate on two Shows only with pot-grown plants; and to separate the cut-flower Shows of Ikebana and Indian Floral Art, and to hold the Shows separately. It suited my idea, that the Horticultural Department to celebrate the birthday of the Father of the Nation, and also of the founder of Bangalore. Two cut-flower Shows, in between two major pot- grown-plant Shows were organised every year-one on "Mahatma Gandhi's Birth Day" i.e. a cut-flower show in the 1st week of October, and the other on "Kempegowda's Day" for cut-flower in April-May (depending on Bangalore 'Karaga' festival). So, four Shows were held every year at Lalbagh during my service there. The District and Taluk level Shows were held only once a year, synchronising with important



A View of "Golden Jubilee Hall" (Headquarters of Mysore Horticulture Society) at Lalbagh, set amidst Lovely Surroundings



Brilliant Annual Chrysanthemums at Lalbagh Show

days and occasions. At Bannur, the Show coincided with 'Hemadramma Jatra', a fair with cattle fare, every year.

III. Limb Three ('A' to 'Z' inputs)-Bangalore Nursery Men Co-operative Society

For All inputs: All the nursery-trade in Bangalore had grown up along with Lalbagh since 1856. The nurseries and nursery trade enjoyed the pride of place, spread over on either side of the northern direction of Lalbagh road, from Lalbagh to Richmond circle. The pride of place in nurseries are: M/s Devappa and Sons, Rudrappa and Sons, Muniswamy and Sons, Obalappa and Brothers and so on, ever participated in the Shows. There was no thinking of Lalbagh Show without these people participating in it. On the southern side of Lalbagh, another nursery complex started flourishing-at the village called 'Lalbagh Siddapura'; almost everybody in the village adopted nursery work and its trade as their profession, and I called, "Siddapur", "the Little Holland of Bangalore."

After Indian Independence, all the nurseries on either side of Lalbagh road, started vanishing one by one, yielding place to other purposes, the once reputed ones. Saving them was my major burden and this confused problem troubled me. Without Horticultural inputs (Horticultural planting materials) there could be very little horticultural progress and development. Added to it, my selfish interest was to keep the image of Mysore Horticulture on Indian and World map intact. So, it became inevitable for me to save this nursery trade of Bangalore. The first thing was to stop the sale of plants in Lalbagh and to start Bangalore Nurserymen Co-operative Society in Lalbagh to give it

succour. Now, in the whole of Asia, the BNCS is the only one of its kind; and all the nurserymen were thus saved; and there are now over three hundred registered nurserymen; and the trade turn over is over a few crores annually in the Society itself. The M/s.Indo-American Hybrid Seeds Ltd., and its nursery are known throughout the world for quality hybrid seeds and pot-grown- plants. Its nursery international trade is a big industry by itself, involving crores of rupees; unique in Asia, it handles the trade in a very scientific and technological manner with a highly qualified personnel. And they have brought great credit to our state Horticulture; and they are the "Kohinoor Gems in Horticultural achievement" and the "Crown of Bangalore".

IV. Limb Four (To handle 'A to Z' all outputs of Horticulture) - Horticultural Co-operative Marketing and Processing Society

Horticultural products like fruits, vegetables, flowers, etc., are perishable commodities. Unless they are disposed off immediately after harvest, they perish. Once harvested, they become a liable headache to the growers, and a situation would arise thus: "Get something now or nothing". Under such a situation, the cultivator is even forced to undersell and incur heavy losses. I contacted the already well-known Co-operative Societies, one in Gandhi Bazar and another in Malleswaram. They refused to handle these commodities. Then I decided to start "Horticultural Producers' Co-operative Society". Now, it has a history of its own to be proud of.

The branches of this Society were opened at Bangalore, Ramanagar, Channapatna, Mandya, Srirang



Colourful Bougainvilleas at Lalbagh Show

gapatna, Mysore, Maddur, Mangalore and Hassan. For the use of "Drive-in-Co-operative Societies", separate buildings were built at Maddur, Mandya, Srirangapatna and Mysore. Many tempos were pressed into service, in addition to the two insulated vans. At Hulimavu and Hosakote farms, collecting halls were built. One sales office was built at Bannur. Whenever blue-grapes and tomatoes gutted in the market, the Society made fresh juice of blue grapes and tomatoes for sale. Wholesale supply of fruits and vegetables to hospitals in Bangalore, Mandya, Mysore was also undertaken by these Societies.

When Late Sri M.V.Krishnapa conceived the idea of Milk Supply to Bangalore City, he and I discussed the inclusion of fruits and vegetables, along with milk. When he went to Denmark, "the fruits and vegetables were left out!" Then I thought of "Horticultural- Service-Centre" to all major Bangalore City Corporation wards. The idea was to start these service centres, under the auspices of the Department of Horticulture, and that of Bangalore City Corporation, to facilitate : (1) the Hor-

tical Section of MHS: (2) the BNCS and (3) the Horticulture Marketing Society, jointly to operate and render all the Horticultural services to each family in the ward, "Render-service-on-paid- request-basis." Essentially, the "four-limb-approach" applies to all my works and functions in the Horticultural Department for over 30 years : "Dreaming big ; planning big, and executing it with bulldozer speed!"

My chief ambition in life was to make, to build, and to leave behind a major Department of Horticulture, in the place of a miscellaneous minor Department of Gardens I had inherited. No man-made rules came in my way. The law of nature of plants was my only beacon-light and guide!

Now, I experience a feeling of happiness and contentment that I was able to achieve quite a few things without getting jaded at any time. When I look back, I have many pleasant memories to crowd in.



The Focal Point of Horticultural Show at Glass House (the splendid exhibits are from M/s. Indo American Hybrid Seeds, Bangalore)

THOUGHTS ON FOOD AND OF FOOD

Food is the mixture of carbohydrates, proteins, fats, minerals and vitamins. What is N.P.K. mixture for plants, the mixture of carbohydrates, proteins, fats, minerals and vitamins is to man. Unfortunately food meant for us consists only rice, wheat or ragi and nothing else. Consequently, we consume more than the required quantity of rice, wheat and ragi. Even our eating habit is very bad - rice with curry, rice with rasam - rice with curds, and so on. Fruits, like Banana, etc., we eat after the food and not along with the food to save rice.

By changing our eating habit and by reducing the consumption of rice or even by giving up rice eating habit the advantages are:-

I. Irrigation water point of view:

(a) Water required for one acre of paddy cultivation could be utilized to cultivate 3 to 4 acres of other food

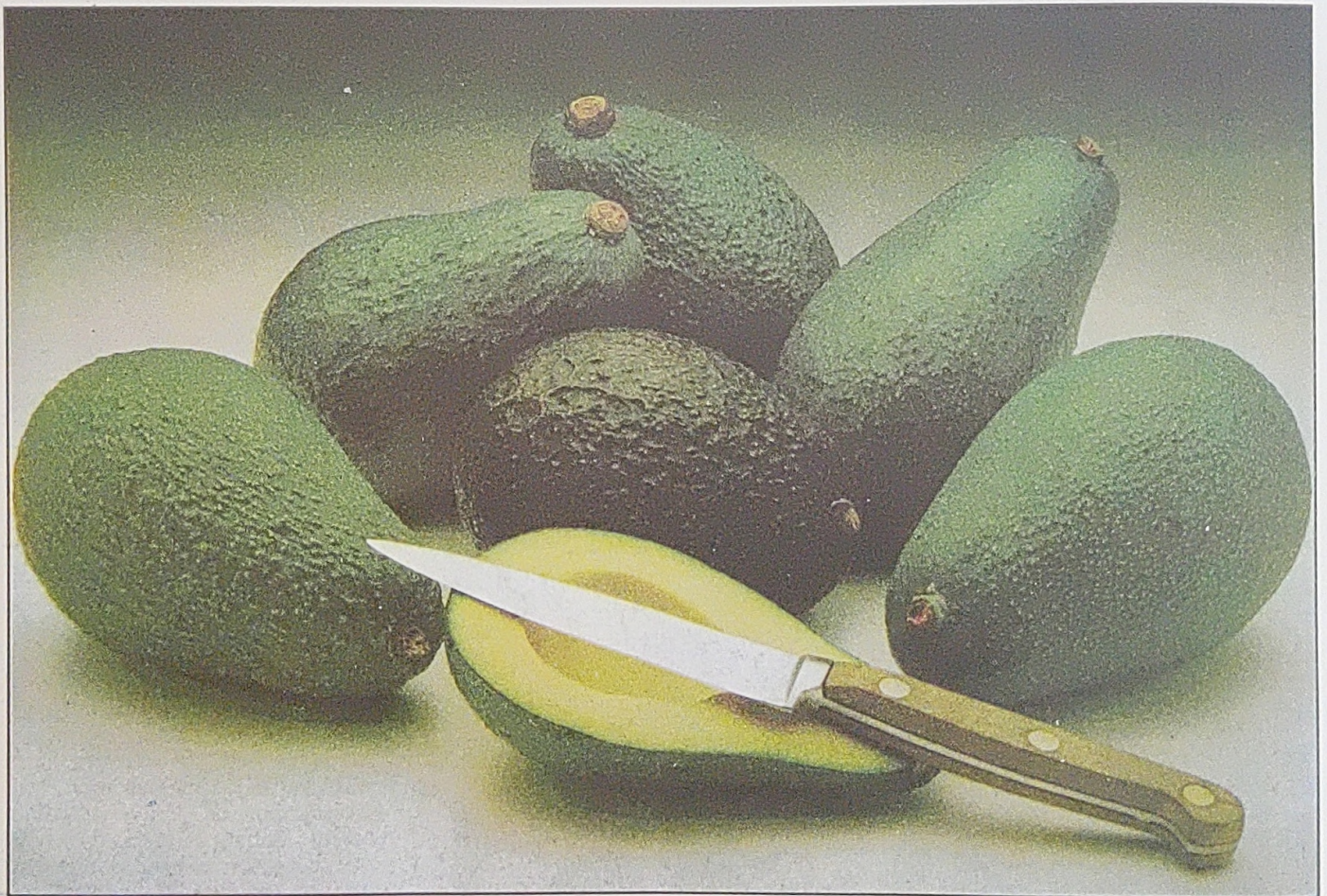
crops like irrigated ragi, irrigated jowar, potato, sweet potato and banana, etc.

(b) The area under most of the minor irrigation, tank irrigation and well irrigation wherever paddy is cultivated, may be brought under other crops in order to increase Food and yield.

(c) By avoiding paddy cultivation or reducing area under paddy even under regular irrigation, not only more area could be brought under food crops, but also, by changing the rules, the cultivators could be allowed to handlift the channel water to bring the dry land, along with upper side of the channels, under vegetable and other tuber crops.

II. Yield point of view:

(a) Compared to yield of paddy per acre with other good food crops like irrigated ragi, banana, or any



In India, fat-rich Avocado (Butter fruit) remains still an unfamiliar fruit.



Lettuce, rich in minerals and vitamins.

other tuber-crops, the latter crops give two to four times more yield per given area.

III. Land point of view:

(a) By changing paddy to any other crops will release one to two times the land for:

- (i) Producing more food to overcome the food shortage;
- (ii) Producing raw plant materials to reduce our imports; and
- (iii) Producing more exportable plant materials for earning foreign exchange.

IV. Food point of view:

(a) Ragi, banana, potato and sweet-potato are all any way better carbohydrates compared to paddy.

Good starches like potato, sweet potato and banana, even though consumed, they are used to help to consume more of rice rather than to save rice.

Hence, we should wage war ourselves against our own eating habits.

Carbohydrates

The sources of carbohydrates are:

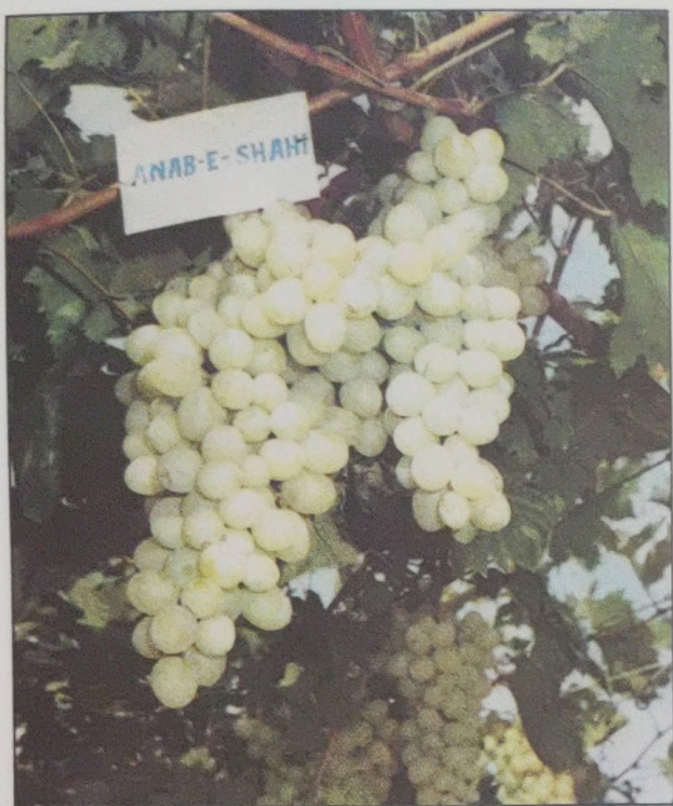
(1) Rice, (2) Ragi, (3) Jowar, (4) Maize, (5) other Millets, (6) Potato, (7) Sweet Potato, (8) Beet Root, (9) Banana, (10) Bread-fruit, (11) All tuber vegetables, (12) Sugar, (13) All fruits with sugar and starch contents, (14) All starchy vegetables, (15) All yams, etc.

Out of all these carbohydrates, we are short only in rice, wheat, ragi and jowar, but we have over a dozen other better carbohydrates which could be used in place of rice, wheat and ragi.

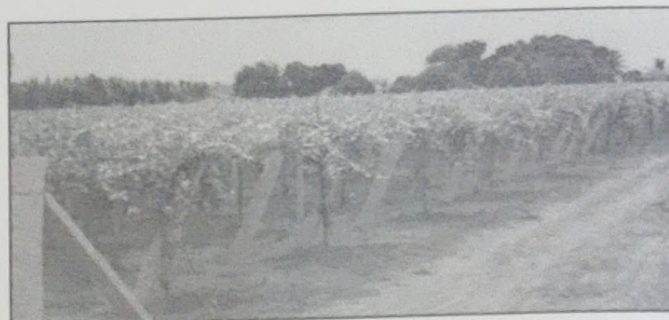
Potato, sweet potato, banana and other edible tubers are all better starch (Carbohydrates) than rice, wheat and ragi. To miss rice or wheat or ragi once a day is not at all difficult and it is better for health to miss rice or wheat or ragi once a day and substitute one of the six lunches without rice or wheat or ragi, mentioned below. under wheatless, riceless and ragiless lunches.

Proteins

There are two major sources of proteins-, animal proteins and plant proteins. Meat, egg, fish, milk, butter, etc., are all animal proteins. Pulses, beans, butter fruit and all other proteinous vegetables and fruits are



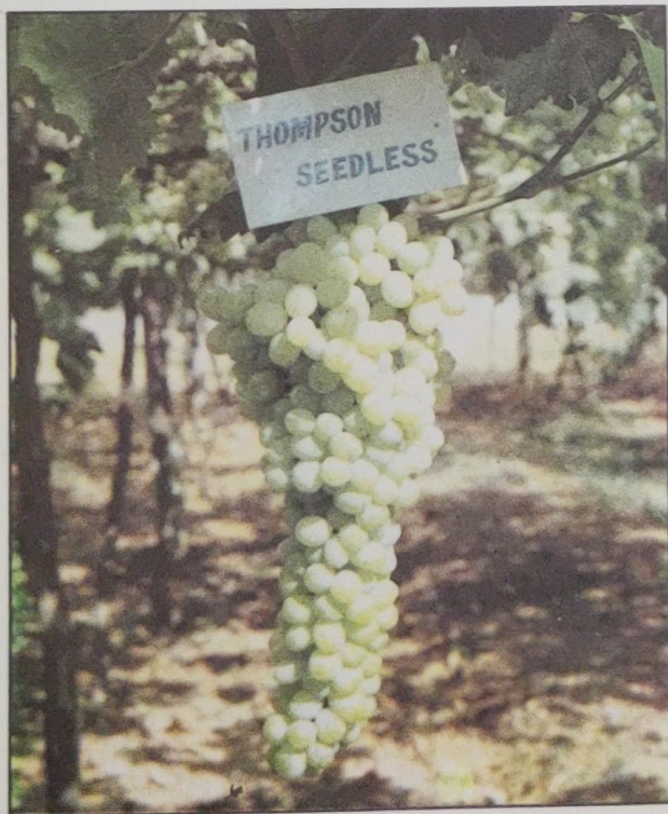
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3

Fruit crops the Department of Horticulture have popularised

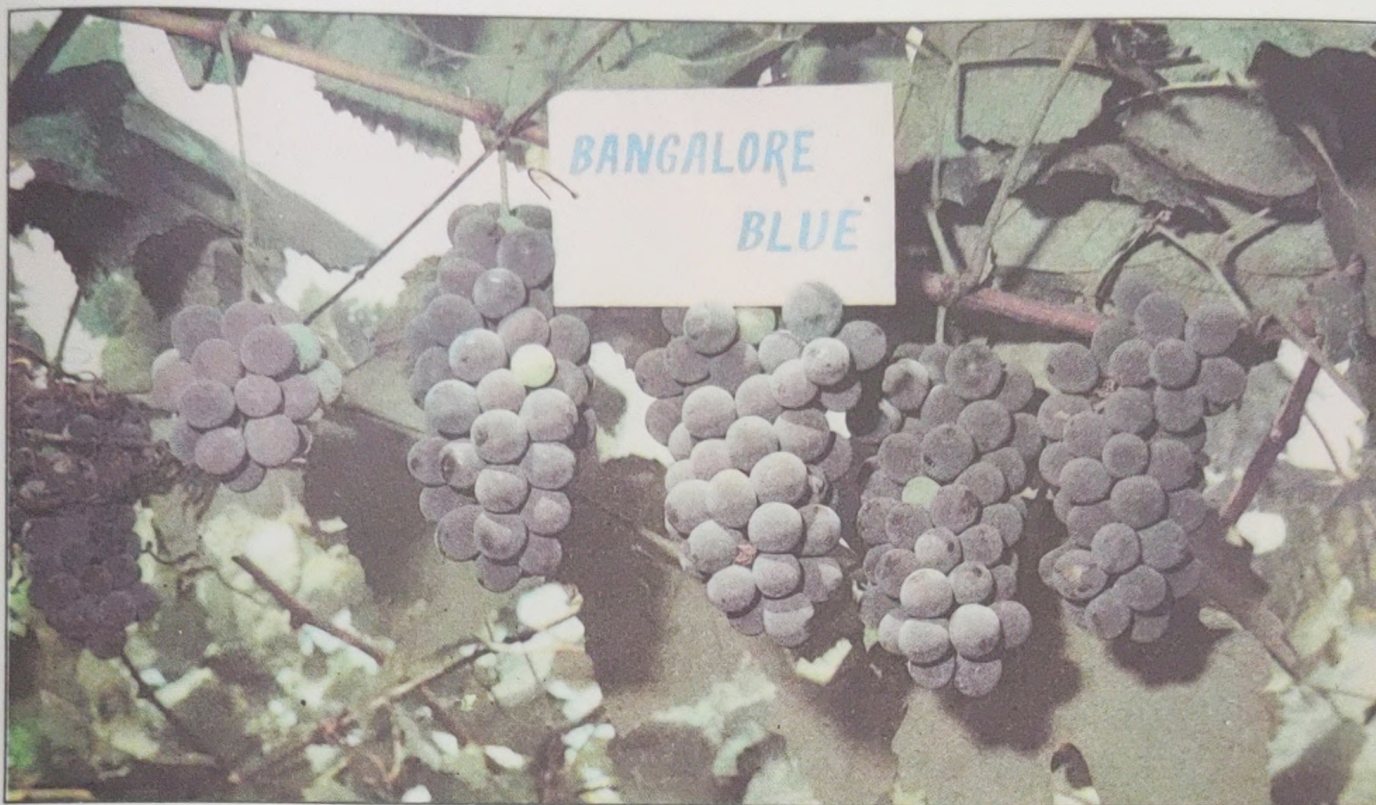
1. 'Anab-E-Shahi' Grapes.
2. 'Thompson Seedless' Grapes.
3. A view of vineyard.
4. L. Hanumaiah, Director of Horticulture in a Sapota orchard.
5. 'Bangalore Blue' grapes, which were originally introduced into Lalbagh.
6. 'Eureka' lemon, a favourite fruit crop in Kitchen gardens.



2

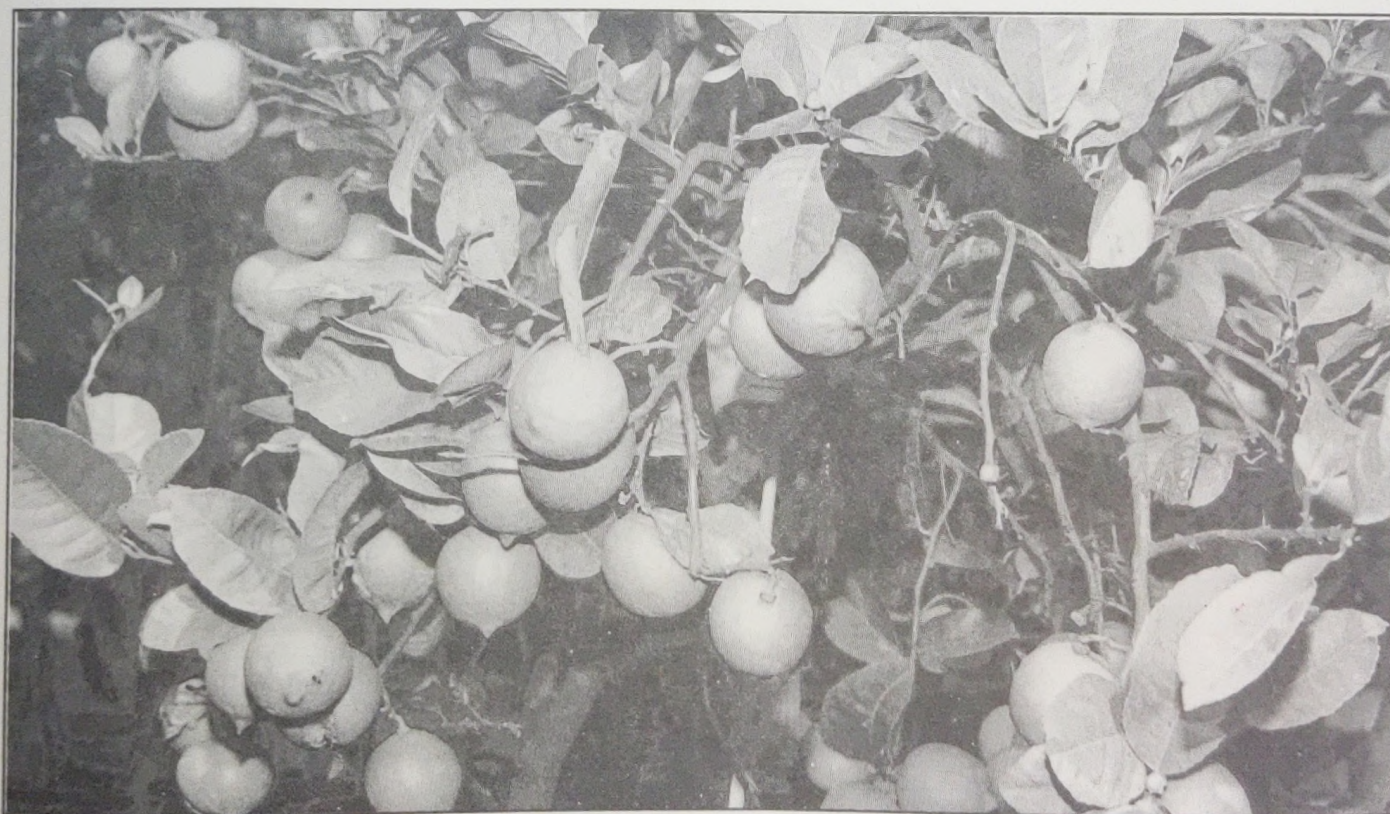


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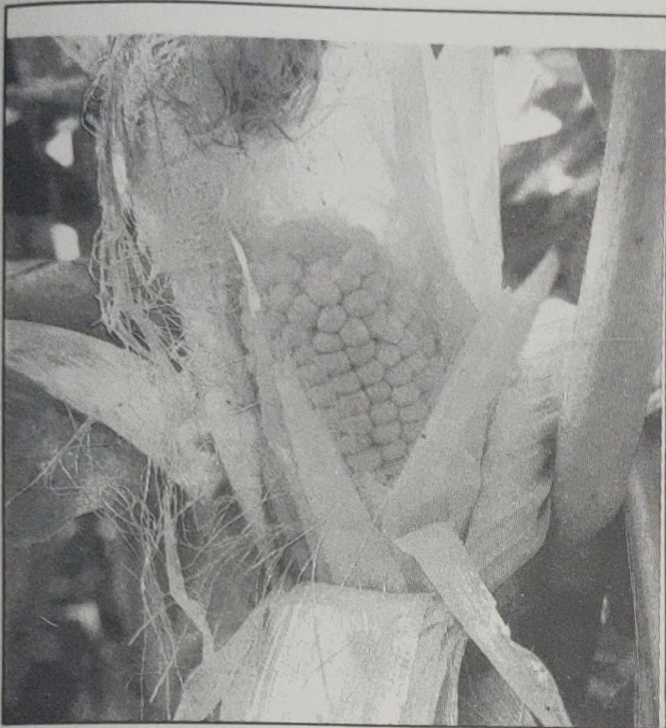




K. Hanumanthaiah, Chief Minister, at Fruits Show, Lalbagh, 1954.



B. D. Jatti, Chief Minister, at Grapes Show, Lalbagh, 1959



Maize - Rich in Carbohydrate

all plant proteins. Our food should contain luxurious (both in quality and quantity, both animal and plant) supply of proteins to maintain good health.

Fats

There are two major sources of fats-animal fats and plant fats. Butter, meat, fish are the sources of animal fats. All the edible oil seeds, and butter fruit, are the sources of plant fats.

Minerals and Vitamins

All fruits and all vegetables are the only sources of the health giving and health maintaining sources of minerals and vitamins. Over half a dozen vegetables and half a dozen fruits should be included in our daily diet. In the wheatless, riceless, and ragiless lunches, leafy vegetables and common fruits find their places in proper quantity and salads must be used in each lunch.

Eating satisfaction

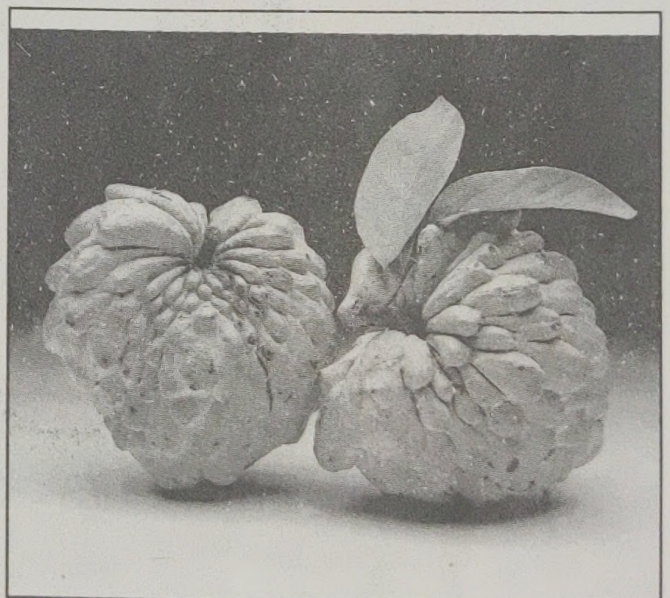
In our eating habit, we are more accustomed to fill the stomach and satisfy the taste glands in the mouth.

Our satisfaction of eating is not on the requirements of the body, but to fill the pouch (stomach) and to satisfy

the mouth glands. So filling the stomach, in our sense, is satisfactory eating. To satisfy this "filling" habit, we have suggested to take as first dish in this riceless, wheatless and ragiless lunches, the mixed vegetable soups in bulk. Once this watery soup fills the stomach, the rest of the items (i.e. starch, protein, minerals and vitamins) are more than enough both to fill the remaining portion of empty stomach and further they will give all the nutritive requirements for growth and to maintain a healthy mind in a healthy body. Old habits must die giving room for better habits.

Vicious circles

One argument we hear, when such of these suggestions, are made, will be "We are poor people" and who can afford to eat vegetables and fruits as part and parcel of food ? and the ironical part of this argument is that it comes from those who could "afford" and capable of buying rice and wheat in black market. We speak of our sympathy for the poor, but at the same time we forget, it is we who could "afford" such cost, will resort to black market. If, we all, these "Poor-man's" could determine to have this riceless, wheatless and ragiless lunches once a day; the country could supply the poor people with enough rice and wheat. Let all those who could "afford", officers, business class, rich class and urban class-start to forego rice, wheat and ragi, once a day and substitute the "good food" as lunches-select any one per day and there are six for six days-Sunday is God's day, you do as you like.



Custard Apple, Common man's fruit, - rich in sugar

Soup

Any single piece of vegetable which could not be used for curry could be made use of for mixed vegetable soup. Any kinds and any number of vegetables could be used. At least not less than three leafy vegetables must be in soup. Even such leaves as radish leaves and cabbage leaves which are normally thrown away could be used. The kind and the quantity of the soup to be cooked depends on the number of people in the family. Home-grown vegetables are ideal for such soup.

It is better to boil the vegetables without salt. For taste, chillies could be used. Split green chillies could be used with vegetables. Pulses like cow-pea ; horse gram, green-gram, black-gram, etc., could also be used along with vegetables. If germinated pulses could be used, one can prepare a very healthy soup. Capsicum also suits well for soup and add pepper to it. Salt, Pepper (if one could afford, even butter) may be added according to taste while consuming.

Boiled or roasted potato or sweet potato or beet root or carrot or maize are good sources and bulk starch and they could be eaten in place of rice.

Boiled or roasted potato with butter, salt and pepper will be delicious. Boiled or roasted sweet potato could be eaten without any accompaniments or with butter. Boiled Maize, with chutney and butter or butter and salt with pepper is good. Tender maize cob (the

whole cob after removing the husk) may be dropped in boiled water. After 10 minutes, remove the cob on to the plate, when still warm smear butter, salt and pepper or chutney or even butter and chutney powder over the cob and eat. Beet root and carrot are also good sources of carbohydrates and could be eaten by mere boiling.

Fruits

Fruits, whether guava or sapota or banana or grapes or any other fruits, should become part and parcel of food we eat and they should not be used as luxury food after the food or in between eating times.

Salads

The habit of raw vegetable eating as "salads" should be encouraged in all homes. Especially, children should be encouraged to use more and more soup and raw vegetables as "salads". Mixed and raw vegetable "salad" preparation must be encouraged even in restaurants.

Meals in Restaurants

There should be directions from Government to all the restaurants to serve one wheatless, ragiless and riceless lunch per day and to use more salads as part and parcel of meals.



Litchi - a fruit with exquisite taste!

PRESERVING PARKS AND GARDENS FOR POSTERITY

A. GIRISH RAI,
Assistant Director
Department of Information and Publicity
Bangalore.

Karnataka comes to one's mind in a never ending stream of spell-binding sights like the sundrenched, palm fringed beaches, majestic hills and rocks, evergreen forests fascinating flowers and invigorating parks. It is a land of peace, beauty and old world charms. As one wanders through the highways and away from the city to the villages, the under current of history and flashes of that brief moment of glory when Mysore stood alone against the might of the surrounding alien powers and enemies could be visualised. The State is a land of myth, history and culture. It is generally referred as the 'Model State' of India. There are several well laid out parks and gardens through out the State. Bangalore the capital city, is well known for its wholesome salubrious climate and unsullied air.

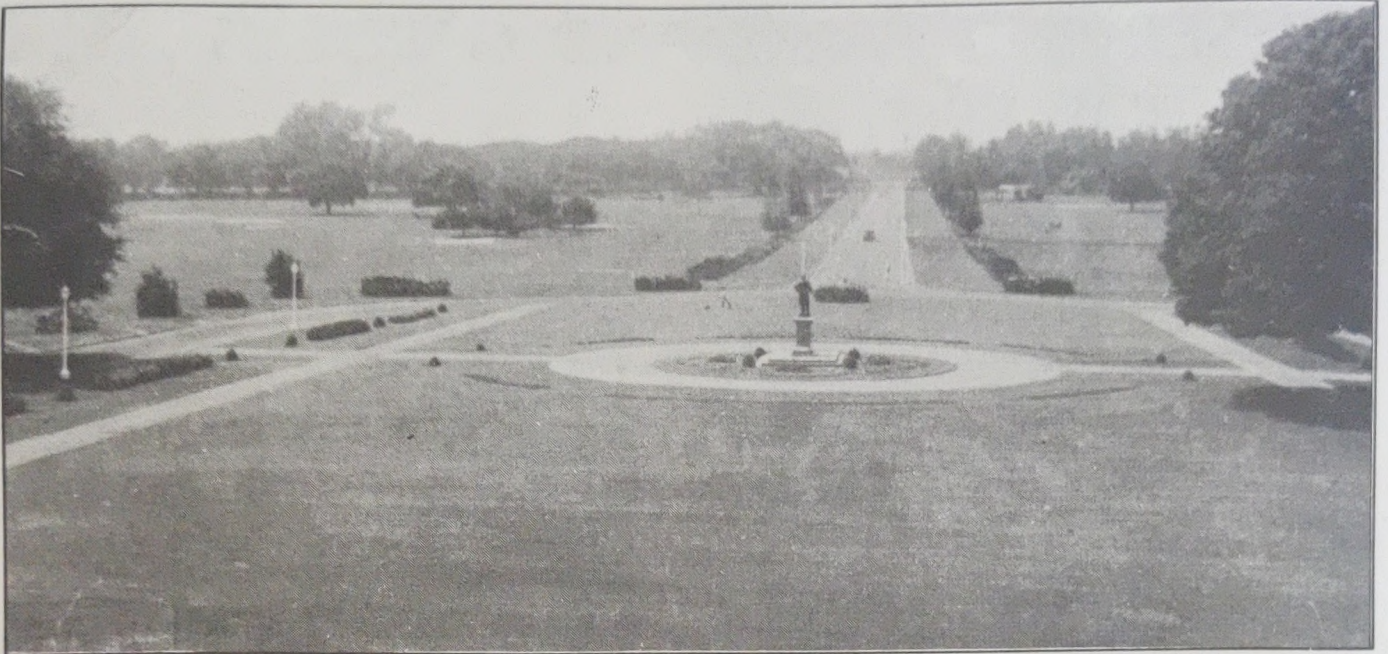
Landscaping in Olden Days

The art of landscaping and laying parks was prevalent in Karnataka even earlier to the fifteenth century. But, this beautiful art was perfected during the period of Hyder Ali, who imbibed the Moghul taste regarding gardens. Thus horticulture and laying out gardens was a favourite hobby of both Hyder Ali and Tippu Sultan. The gardens at Darya Daulat Bagh and Gumbaz, Srirangapatna were in the classic Persian tradition. The enchanting Lalbagh, the Botanical Gardens, tell their flowery age-old tales of exotic plants and rare trees. The grand imposing parks and multitudinous flora breathe a spirit of time immemorial. The Cubbon Park reminds many a Londener of 'Hyde Park' with its sprawling green parks and shady trees.

The lush green parks with avenue trees and ornamental bushes provide the much needed 'Lung Space' in one of the world's fast growing metropolis, Bangalore. The famous Brindavan Gardens at KRS near Mysore, Pampavana, the Garden beneath the Tungabhadra



The 'Morning Calm' at Lalbagh



Two photographs of Cubbon Park, taken from the diagonally opposite points, one in 1930 (above) and another in 1990 (below), depict the contrasting landscapes.



Dam at Munirabad and the Town Park maintained by Kudremukh Project, Chickmagalur District, are some of the famous gardens in the state. Industrial growth and urbanisation have taken a heavy toll by polluting the atmosphere. The tendency needs to be checked and reversed before it reaches catastrophic proportions.

Threat to Parks

Historically, parks and gardens have been part and parcel of social and cultural heritage of our state and the nation. Many of the parks are facing the growing onslaught of environmental degradation today. The constant loss of green cover by highly polluting industrial effluents, indiscriminate use of parks, menace of stray animals, occasional felling of trees, encroachment and alienation and trampling by urchins have all sapped the vitality and tranquility of these parks. The parks are some times being misused for nefarious activities. These are indeed dangerous developments causing concern. The vigilant Government has actually enacted a piece of Legislation, banning this and making provision to preserve certain Parks and Horticultural Gardens in the State, way back in 1975 itself, called "Karnataka Parks (Preservation) Act-1975".

Peoples' Cause

Preserving the beauty and tranquility of these 'Gardens' cannot be enforced by law alone. It is a peoples' cause. They should volunteer to preserve the parks with missionary zeal. With an increasingly serious problem of spoiling and pollution of parks and gardens throughout the state, there is obviously the need for concerted action to preserve and pass on the tradition to posterity. If the degrading tendency is not arrested, we will be guilty of squandering one of the most cherished treasures handed down to us by our fore fathers. These 'Things of Beauty' the breathtaking creations of Nature should at least be protected and preserved. there is a great deal of enthusiasm and involvement both at Government level and with the people. The committee constituted in connection with the centenary celebrations has addressed itself to the problems facing the major parks of Bangalore. It has already initiated corrective steps to arrest the trend and to bring back beauty and serenity to these parks. If timely and corrective steps are not taken, it is estimated that by the turn of this century, what remains of the beautiful 'Lalbagh' would be only about 250 acres of barren land fit only to play football. Many of the present day parks would soon become mere shadows of their glorious past. Let this not happen.



A View of Coniferous Trees in Profusion at Lalbagh

THE KARNATAKA GOVERNMENT PARKS (PRESERVATION) ACT, 1975

(Received the assent of the Governor on the Ninth day of May 1975)

An act to make provision to ensure the preservation of certain Government Parks in the State of Karnataka.

Whereas it is expedient in public interest to preserve certain parks vested in the State Government in the State of Karnataka.

Be it enacted by the Karnataka State Legislature in the Twenty Sixth year of the Republic of India as follows:

1. Short title and commencement:-(1)This act may be called the Karnataka Government Parks (Preservation) Act, 1975.

(2)It shall come into force at once.

2. Definition: In this Act unless the context otherwise requires 'Park' includes a garden.

3. Application of the Act:-(1)This act shall apply to all lands and buildings within the limits of such parks belonging to the State Government as the State Government may from time to time, by notification in the official Gazettee, specify.

(2)The notification referred to in Sub-section(1) shall specify as nearly as possible, the situation and limits of such parks.

4. Preservation of Parks:(1) It shall be the duty of the State Government to preserve and maintain as Horticultural garden the parks to which this Act is applicable and take such action may be necessary to improve the utility of such parks as such gardens.

(2)No land or building within the parks to which this is applicable shall be alienated by way of sale, lease, gift, exchange, mortgage or otherwise or no licence for the use of the such land or building shall be granted and any alienation or licence granted in contravention of this section shall be null and void.

Provided that the restriction under this sub-section on lease shall not apply in the case of buildings existing on date of coming into force of this act.

KARNATAKA ACT NO. 23 OF 1975

First published in the Karnataka Gazette on the Twenty Second day of May 1975.

By order and in the name of
the Governor of Karnataka

Sd/-

M.L.RAMASWAMI

Draftsman and Ex-Officio Joint
Secretary to Govt, Paly.Affairs

LALBAGH - A BEACON LIGHT FOR DRYLAND HORTICULTURE IN KARNATAKA

K. Ramakrishnappa,
Project Director,
Kabbalanala Watershed Development Programme,
Kanakapura.

Dry orcharding is an old art and a new science. The practice of dry orcharding, as seen now, is not entirely a new concept of orcharding. There are evidences to show that our ancestors had planted orchards in low-rainfall areas, especially around religious places as "Devara Topu", around villages as "Gundu Topu" and in village panchayat land as "Gomals" and "Kavals".

The accounts of such dry orchards can be seen in literary works and inscriptions of ancient times; and a few of such orchards can be still seen at some places in good condition. A best example of such dry orchards is the "Tamarind Grove" around the ruins of Nal-

lur, in Devanahalli taluk of Bangalore district. In Lalbagh of Bangalore city too, there are some mango trees dating back to the periods of Hyder Ali and Tipu Sultan, which remind us of the orchards which were 'royal retreats'. In Srirangapatna (Mandya district) also, the remnants of such orchards can be seen around the celebrated 'Daria Daulat' and 'Gumbaz'. The erstwhile rulers of Mysore (Wodeyars) had also shown keen interest in dry orcharding. The famous 'Madhuvana', a royal dry orchard established by them, exhibits varieties of mango, jack and tamarind. It is the clear testimony of the royal patronage to dry orcharding. In Hyderabad-Karnataka area also, many mango orchards were developed purely on dry orcharding techniques, for which the Nizams of Hyderabad had given unparalleled encouragement. Many of these gardens are still in good condition, bearing heavy crops.



Gundu Topu - An Age Old Practice of Planting Trees in Villages

Lalbagh - the Mother Inspirator for Dry Orcharding in Karnataka

The Lalbagh was started round about the year 1760. There is also a saying that it existed even much before. It is said that it might have been a small 'mango and tamarind grove', before it was noticed and felt by Hyder Ali to develop it into a 'royal orchard'. Anyhow, it is the part of the blurred history, and a correct conclusion is impossible to be arrived at. Yet we can, by and large, accept that Lalbagh was a 'dry land orchard'. The visitors to Lalbagh can still see 3 grand old mango trees, of seedling origin, dating back to the times of Hyder Ali and Tipu Sultan. They are thought to be the oldest plants in Lalbagh.

Coming to the period during which the Lalbagh was maintained and nurtured by the European officers, a great lot of impetus was given to plant countless types of fruit trees and other useful flora. The dryland plants so introduced are as follows: Sapota in the year 1860 by William New, the then Superintendent of Lalbagh Botanical Gardens; Guava (1861) and Macadamia nuts (1862). Mr. Cameron who assumed the said post in the year 1874 made all out efforts to introduce various native and exotic dry land plants such as Bael (*Feronia elephantum*), Bilva (*Aegle marmelos*), Anola

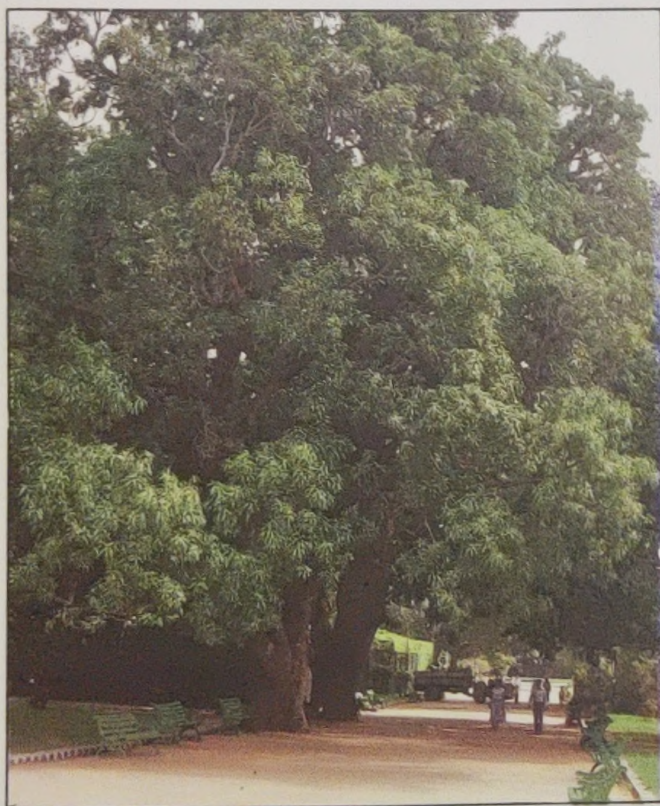
(*Phyllanthus emblica*), Cashew (*Anacardium occidentale*), Annonaceous species, Inga dulcis, Chestnuts, Colanuts, etc. He also attempted to grow Oil palms, Rubber, Cinnamon, Clove and others under the dryland conditions of Lalbagh. His intension was to see that more and more natives follow his experiment. He has made this point clear in one of his reports submitted to the government.

Mr. Cameron was followed by Mr. G.H. Krumbiegel as the Superintendent of Government Gardens (1908-1932). He visualised the potential of dryland horticulture in the Mysore Kingdom and planned accordingly to introduce various dryland species into Lalbagh. During his time, large avenues of mango (Chiefly 'Mulgoa' and 'Pairi' varieties) were planted, which can still be seen on either side of the roads leading from Head Office to Accounts Office and from Accounts Office to the Farm Information Unit, in Lalbagh. He also got planted many mango, jack, tamarind and wild fig (*Ficus glomerata*) trees all along the bund of Lalbagh lake (tank), which was constructed during the times of his predecessor (around 1890). Despite the presence of the Lalbagh lake, there used to arise acute water shortage during late winter and summer months. This point has been highlighted in one of the annual reports brought out by Mr. Krumbiegel, in the beginning of his assumption to the post at Lalbagh. Mr. Krumbiegel made special efforts to introduce different kinds of mangoes, jacks, tamarinds (including the rare and strange 'red-tamarind'), guavas, sapotas, pomegranates, figs, jamun, bael, rose apple, various nuts such as marking nut, soapnut, chestnuts, etc., *Cordia myxa*, *Cordia sebestina*, *Malpighia glabra* (Barbados Cherry), *Annona cherimola* (Cherimoyer), *Eugenia michaeli*, Allspice, and a score of dryland fodder, fuel and timber species from all over India as well as the world.

During the times of H.C. Javaraya (1932-1944) too, hard and sincere efforts were made to introduce, acclimatize, propagate and popularise various dryland species in the Mysore Kingdom and he could succeed to not a small extent. He started the famous Maddur orchard in the year 1942.

Dr. Marigowda, the Advocate of Dryland Horticulture.

After acquisition of higher knowledge in the United States of America, Dr. M.H. Marigowda set his foot back to India, with a very high degree of intellectual and mental ability. On his return, he assumed the post of Deputy Superintendent of Government Gardens on 9th August 1951 and in a shortwhile, he rose to the post of the Superintendent of Government Gardens



Oldest Mango Trees in Lalbagh, Dating Back to Tipu's Time



The First Sapota Tree Introduced into Lalbagh in 1860

(on 29th December, 1951) and later, the Director of Horticulture (1960).

Right from the inception of his service he professed for keeping the boundaries of horticulture open to all the farmers in the state and he felt that this could only be possible by bringing the dry and marginal lands in the state to the fold of Horticulture. In fact, it is he who gave a real meaning to 'dry orcharding'. It was possible for him because he loved both dry land crops as well as the poor people living amidst poverty in the vast stretches of drylands in the state. He stressed that only the horticulture can come to the rescue of farmers in dry and arid zones of Karnataka, where the resources are scanty and the nature is harsh.

To demonstrate the worth of dryland horticulture, Dr. Marigowda started dryland horticulture farms at various parts of Karnataka, and the number of such orchards run into hundreds. The area of these farms ranged from just five acres to thousands of acres! The most note worthy among these dry orchards are: Hogalagere Horticultural Farm (in Srinivaspur taluk of Kolar district), Doddasaggere Horticultural Farm, (in Koratagere taluk of Tumkur district), Indira Horticultural Farm (in Madhugiri taluk of Tumkur district), Malasandra Horticultural Farm (in Nagamangala taluk of Mandya district), Jack Progeny Orchard at Tamaka (in

Kolar district), Cashew Progeny Orchard at Bagali (in Chamarajanagar taluk of Mysore district) and a lot many others throughout the length and breadth of Karnataka.

Dr. Marigowda felt that the dryland horticulture serves the dual purpose; to provide more nutritious fruits to the daily food of populace and to augment the resources of the farmers to tide over the acute and recurring drought conditions. The dryland horticultural farms he started at the aegis of the Department of Horticulture are serving two purposes; namely as a source (nursery) of valuable planting materials to the growers and also as a place (plot) of demonstration of dryland technology to the farming community, which knew very little or nothing about dry land techniques and management then. By 1970, by the virtue of his hard efforts, the dry-land technology got firmly imprinted in the minds of farming community, which reflected in the thirst expressed by the farmers to start such farms on their lands. As a result of this, the demand for planting materials got shot up steeply and to meet this situation the Department had to start special schemes for the production of planting materials. 'Rapid multiplications', 'Ground nurseries,' 'Mist chambers', 'Poly houses', etc. came into force as a consequence of this development.

Dry Land Horticulture Philosophy of Dr. Marigowda

In the 'Dry Orchard' special issue of 'The Lalbagh' journal (Jan-June 1974: Vol XIX No. 1 and 2) which was brought out to help the extension workers and the farmers, Dr. Marigowda has put forth his valuable ideas about dry-land orchard philosophy and the same is reproduced here.

"On a personal note, I would like to explain what orcharding means to me. The orcharding has to be evaluated on two different planes: (a) Materialistic and (b) Spiritual-cum-Aesthetic. On the materialistic plane, orcharding helps to build up vegetation and also provides fruits. This is according to the law of nature. Our efforts are to be directed to derive the maximum benefit by adopting methods to assist nature to play its part to the maximum extent. On the spiritual and aesthetic plane, orcharding imparts to man (i) A sense of orderliness (ii) A sense of discipline and (iii) A sense of serenity. These are of utmost value to every human being and much more so, in the present day, to the society in which we live".

Thus by his strenuous efforts, staunch philosophy and good intentions, his dream of dry land horticulture has become the order of the day and has caught the attention of planners at both state and national level. The

fruits of which have reached the poorest of the poor in the state and countless farmers have been able to come over the poverty line. For this 'miracle', the whole state and the country need to be highly indebted to Dr. Marigowda.

Popularisation of Dryland Management Practices

Originally practiced in Lalbagh, and later re-practiced in the Departmental dry orchards, the dryland management practices standardised by the Department of Horticulture have become standard techniques elsewhere in the state and the country. Most of these practices are the result of trial and errors made by a score of developmental officers. These techniques include the following. (a) Contour bunding (b) Crescent bunding and dummy pits (c) Square bunding (d) Double basin (e) Mulching (f) Protective irrigation through pot-dripping, etc.

Under the cropping pattern, the Department is suggesting pure (mono-block plantation), inter and mixed plantations. For the latter two, the plants of big, medium and small canopy are being made use of. As far as the dry land crops that are being commonly suggested are: Mango, Ber (both Indian Ber and Chinese Ber), Jack, Cashew, Tamarind, Annonaceous



A Vast Mango Plantation Stretching upto Horizon - Doddasaggere Horticultural Farm, Tumkur District



Growers' Overwhelming Interest in Dryland Watershed Development Programmes has Transformed these Barrenlands to Thriving Mango Orchards

species, Sapota, Fig, etc. have been suggested under commercial species group. Under semi-commercial species group, the plants such as *Carissa coroda*, Bael, Phalsa, Anola, Marking nut (*Semecarpus anacardium*), Chiranji (*Buchanania latifolia*), etc. are recommended.

Under the group of horticultural crops with moderate drought, tolerance (which need occasional irrigation for good yields), the crops such as Guava, Litchi, Avocado (Butter fruit), Roseapple, Bread fruit, Pomegranate, Curry leaf, etc. suit well to dry conditions. But, it is ultimately the farmer who is going to select the crop of his choice, of course under the guidance of the horticultural experts. The choice of the right species, along with the proper management practice, makes a clear impact in terms of growth and productivity, which ultimately helps the farmer to get enhanced returns.

Development of Horticulture under Dryland Watershed Development Programmes

In Karnataka, the watershed development programmes for rainfed areas have been instituted in the form of a comprehensive project in the year 1985. These are the programmes which are not mere soil and

water conservation or tree planting programmes, but are the programmes to increase the overall productivity of a given area dependent on rainfall, apart from maintaining ecological balance in a good order. Such 20 watershed projects are under successful implementation in Karnataka, one in each district.

In these watershed programmes, the three land-based activities such as agriculture, horticulture and forestry, are combined and are being implemented in a coordinated way. Under the horticultural sector, the activities such as development of orchard horticulture (in grower's field), silvi-horticulture (in govt. or revenue or community land), development of school orchards, planting on bunds, boundaries and around water harvesting structures such as farm pond, check dams and nalabunds, etc. are the standard works.

One of the special programmes contemplated under these watershed development projects is "alternate land use", which aims at putting the agricultural land into alternate purposes such as horticulture, social forestry, pastures, etc. The alternate land use has been suggested looking into land capability classification and the willingness of the farmers. One of the most effective and popular 'alternate land use' activities is developing dry orchards, the idea of which is



A Crop of Bounty - Totapuri Mango fruits

being well grasped by a majority of farmers in all the watersheds, because of the following decisive reasons.

(a) The perennial horticultural tree species exhibit enormous drought tolerance and are able to produce normal crops even during the periods of acute drought, when all the field crops fail.

(b) Horticultural species give regular and sustained income to the grower.

(c) Unlike the other vegetations, it is not customary to cut the horticultural trees. The horticultural vegetation is relatively a more permanent kind of vegetation.

(d) The perennial horticultural crops have vast and exhaustive root system, which helps in soil binding, and thus help to prevent soil erosion.

(e) The horticultural groves improve the environment and microclimate.

(f) The cultivation of perennial horticultural crops warrant least disturbance to the soil in the interspace, in terms of intercultivation. Because of all these impending reasons, countless dry orchards have come in dry areas all over the state.

Crystallization of Departmental Efforts

As said earlier, the Dryland Watershed Development Programmes were started in the year 1985, in the form of a 'Pilot Project' for the development of rainfed areas in the catchments of Kabbalanala, in Kanakapura taluk of Bangalore district. When this project was launched, there were only two components, namely: Agriculture and Forestry. The equally important 'Horticulture' sector was missing. This anomaly was immediately spotted by Mr. L. Hanumaiah, the then Joint Director

of Horticulture (Planning), and this issue was raised at top level in Government, during the visit of World Bank experts namely Mr. Greenfield and Dr. Harbans Singh, with all facts and figures in support of the inclusion of 'Horticultural' sector. At this stage it should be remembered that but for his timely identification of the anomaly and vehement "fighting" at Government levels, the "Horticultural" component would not have been included in the watershed programmes in the state. This is the unique achievement and invaluable contribution of Mr. L. Hanumaiah to the Dry Land Development Programmes and return to the field of horticulture in the state. At this juncture it will not be wrong to say that Mr. L. Hanumaiah, thus, laid firm foundation to the horticultural activities taken up on dryland watershed basis. Because of his memorable contribution of this, the whole state is getting unprecedented benefits! Thus, the significant efforts of Mr. L. Hanumaiah in this direction certainly go as a bright contribution in the annals of the history of watershed programmes, as well as in the history of horticulture in Karnataka.

Dry Land Horticultural Wealth Created in Karnataka

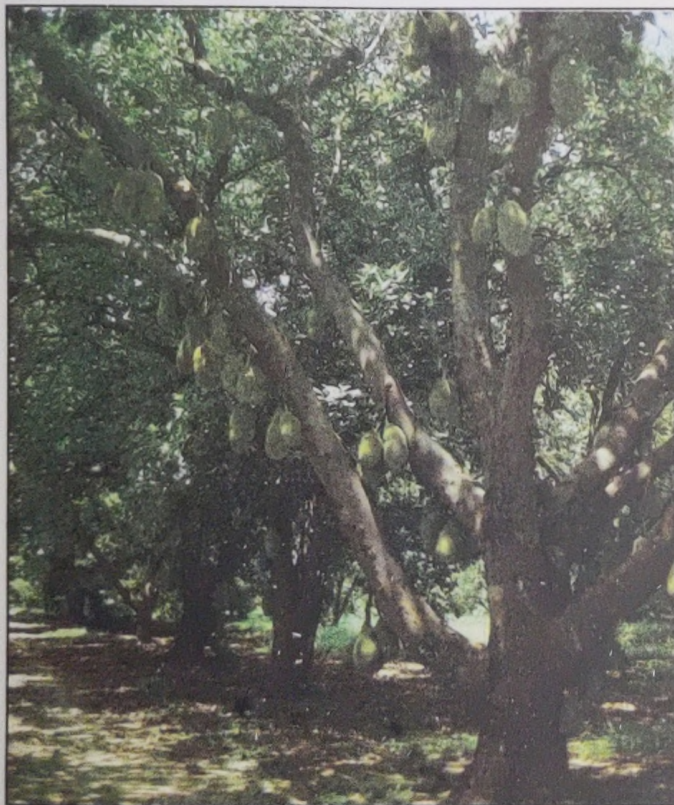
As a result of the good and unfailing attempts made by the forefathers of horticulture in Karnataka and be-



Attractive and Juicy Pomegranates Grown in a Dry Orchard



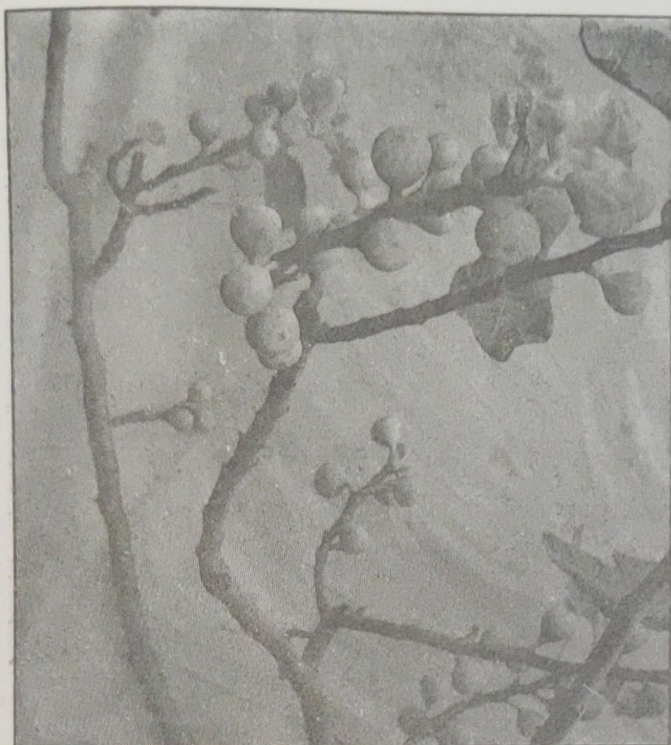
Multitude of Mango Grafts Produced at Kanakapura under the World Bank Aided Dryland Watershed Development Programme.



Jack Yields Heavily under Dryland Conditions

cause of the hard - working farmer folk, now Karnataka stands foremost in the field of dryland horticulture. Various national and international experts, teams and missions have whole heartedly appreciated the matchless contribution of Karnataka in the field of horticulture, and more particularly in respect of dry orcharding. Under Watershed Development Programmes too, Karnataka is serving as a model state to rest of the states in the entire country! The dryland horticultural models and methodology have become standards while formulating similar projects elsewhere in the country. This unique feat of achievement also has secured great applause from the experts of the World Bank. Under dry land watershed development programmes alone, over 10,000 hectares of area has been effectively developed under dryland horticultural crops, with either orchard-horticulture or silvi-horticulture. The total income and the employment opportunities that are going to develop out of this in the years to come will be really astonishing! Both the people and the nation will be benefitted to a great extent by this achievement!

Taking dryland development in the state as a whole, one could see lakhs of hectares under dryland horticulture crops, generating hundreds of crores of rupees



If managed properly Fig can become a 'Big' crop under dryland conditions

every year; supporting an export trade of the volume of tens of crores, patronizing a sphere of employment opportunities, which one could hardly measure!

Lalbagh, the Spirit behind the Credit!

Behind this unique feat of achievement, which is really unique by all means and by any measures, is the guiding spirit that is being emanated from Lalbagh since a couple of centuries. This spirit has been visualised as a 'Beacon light' by those great people who served the field of horticulture, through their selfless service, with an intension of making their surroundings a better place to live in ! Let this guiding spirit pervade the whole atmosphere and universe surrounding this mankind and its benefits shall reach the destination, making the efforts of all the forces that are responsible for this to be acknowledged with all humility and reverence!

[Acknowledgement: The author wishes to acknowledge Dr. S.V. Hittalmani, for rendering constructive ideas in formulating this article].



An 'Isle of Emerald' in the 'Ocean of Drought' - A Breathtaking view of Cashew Progeny Orchard at Bagali, Mysore District

Letter - (iv)

A letter in the form of a report submitted by William Munro, Secretary, Bangalore branch of Agri-Horticultural Society to the head office, Agri-Horticultural Society, Calcutta.

Intelligence concerning the progress of Agriculture and Horticulture on the table land of Southern India, conveyed in the form of a report from the Agri-Horticultural Society at Bangalore. (Lalbagh)

(Read 16th January, 1839)

Although more than a year has elapsed since the last General Meeting of the Society, the delay has not been caused by any unwillingness to report progress, as it is with great pleasure that I can now state that the Society has progressed more successfully than could have been anticipated. The numbers and names of subscribers must of course very much in a station which is so purely a military one as this is. Since the establishment of the Society there have been 280 members, and at present there are 147, classed as follows:

Mysore Commission, 13 18th N.I 9

Clergy and Staff, 22 32nd N.I.7

13th Lt. Dragoons, 17 34th N.I 4

Artillery 5 38th N.I. 3

H.M. 39th Regt., 33 Merchants, 4

Natives 2 Non-residents, 17

By one of the rules a member ceases to be liable for subscriptions on his leaving the Mysore division; this of course is tantamount in most cases to a withdrawal from the Society on account of being beyond its range; exclusive of these, there have been only 7 withdrawals, and out of these not one I believe on account of being dissatisfied with the Society and its managements.

I am not aware of a single permanently resident officer who is not a member of the Society, and as the number of subscribing members is rather lower than usual it must be attributed to the circumstance of the newly arrived regiments not having taken any interest in the Society. Non-residents have been very liberal in assisting the Society in various ways, as will be seen by the statement of donations and presentations attached to this Report. The sums received during the last year, as will be seen by the statement of the receipts and disbursements is Rupees, 5,190-210 and the expenditure, Rupees, 4,379-76.

The garden establishment is very nearly the same as it was at the last meeting, and the principal heavy expenses, have been caused by building a seed-house and dwelling house, for the European Superintendent, constructing Hot-beds, building-walls, and the payment of prizes awarded at the various exhibitions.

The latter is a great draw upon the Funds, but the exhibitions have been attended with so much good, and will if continued effect so much more that it is quite evident, the money could not be better laid out.

In the Agricultural department, the cultivation of the American Cotton has been carried on to a considerable extent and with great success. All the varieties seem to thrive, and the produce of all has been very satisfactory. A great quantity of seed raised in the garden has been distributed, and there is still a large quantity for distribution. The natives seeing the Cotton grown, and perceiving the quality and quantity of the produce, are anxious to try it, and the soil of the greater part of Mysore seems very well adapted to the Upland Georgia, and many localities, particularly in the Nigger country, for the Sea Island, which has proved very healthy and productive in the garden.

The Egyptian Cotton has grown very well, but the seed which was sent to us by the Horticultural Society of India, is

Upland Georgia and New Orleans, but the Sea Island thrives in moist ground that is well drained. The experiments prove, that the produce is much greater from those shrubs that have been transplanted. None of the varieties seems to require any particular care after the first raising, and they were in bearing for 10 consecutive months without any apparent deterioration taking place in the quality of the Cotton, till they were recently cut down in order to introduce them to produce fresh shoots. The Upland Georgia undoubtedly ought to be widely distributed; it must prove a lucrative being distribute crop. The wool of the Bourbon Cotton is very liable to the attacks of an insect which has proved very difficult to destroy.

I have also found the Egyptian, to suffer much from the same insect, which seems to be as further proof of their close affinity. The American varieties do not seem to suffer so much from its attacks. The Nankeen Cotton received from Mr. Alexander has not yet fruited. Mr. Blane was kind enough to send us some Mauritius sugar-cane which, instead of being distributed was cultivated in the garden, and has thriven remarkably well, and is the admiration of all the natives who see it. It has been planted in hole and experiments have been tried with various manures which already prove that sheep's dung is by far the best.

The manufacture of Vinegar from the juice of the cane is likely to be a great source of profit; from 2 maunds of expressed juice, 30 bottles of vinegar in this country, and if this was sold at half the price of English vinegar, namely, 8 annas a quart, it could produce 15 rupees from two maunds of sugar, worth at the best price 1 rupee 12 annas, at 14 annas a maund.

The coffee has succeeded admirably, and contrasting the plants that have been exposed to the sun and those that were put in shady places, it becomes evident that exposure is beneficial to the coffee in Mysore. Many of the trees although only three years' old, have produced $\frac{3}{4}$ of a maund of coffee. I think that coffee is the most profitable plant that can be cultivated in Mysore. A great part of the country is peculiarly favourable to it.

The whole of Nugger, and particularly the Bubabooden Hills, upon which a considerable quantity of coffee is already grown; the whole of Coorg, and many other isolated spots in Mysore are thoroughly adapted to its favourable growth. The principal objection of the natives to it is, that it requires some years to come to perfection. A considerable quantity of oats were grown in the garden the last year: the produce has been great and of a very superior description. Wheat of various kinds have been cultivated and distributed to a certain extent amongst the natives. A small quantity of barley was grown, and I feel confident that it would be by no means difficult to naturalise it in Bangalore.

The hops that were received from Captain McCally, on the part of Government, are very healthy; they have been planted out and every endeavour will be made to introduce so valuable a plant. The moderate climate of Bangalore is, in my opinion, better adapted to the hop, than the extremely variable one of the Neilgherries.

During the last month, a plough made after an American model, was received from the Madras Society, which is of a very bad description; I had a coulter put into it and the beam shortened, and have contrived to make it work pretty well, although there is still a very great fault which will soon be remedied, namely, the share being made of cast iron instead of wrought iron, which renders it impossible to set it right when once a little out of order, and would entail a new share for nearly every day. Two bullocks draw it in dry unworked ground, and the natives seem greatly pleased with it. It will prove a very valuable implement to them, and is by no means heavy for an able-bodied man, and the work that is done with it is of real service to the ground, in addition to the economy of time, which is very valuable at the season when the ploughs are required; for although labourers are in general plentiful in Mysore, every hand is required at one time to get the ground ready as soon as the rain commences. The notion that the soil is not deep enough is a very fallacious one; there is a very small part of Mysore that would not bear the very deepest ploughing and moreover derive great advantages from it; of course the upper surface is more pulverized and apparently of a better description than that immediately below it, which however would bear much better crops. Indeed the fact of their digging the ground deep once in every 3 or 4 years is a convincing proof that they themselves are aware of the necessity of bringing fresh soil to use. Several natives have been taught by a European how to manage the plough and have already made great progress with it.

In Coorg there is a great space of excellent ground left uncultivated for want of hands; there the plough would be invaluable and the valleys might be made to produce coffee, barley, &c. The Burgers on the Neilgherries are remarkably neat and clean farmers, but they seldom cultivate the same ground two years running--for this reason, that they exhaust the soil the first crop and their ploughs do not go deep enough to bring good soil to the surface. Horses or rather mares might be used in the ploughs with great advantage; they are more manageable than bul-

foals would be of value to the farmers, and the expense of keeping them at a short distance from large stations would be very trifling. The horses would also give them a greater interest in their farms than they at present are capable of.

Draining would be of much service in a great part of this country where the soil is rich and naturally very productive, but so cold from the retention of water that it is but little adapted to most crops. During the dry weather there are so many hands to spare that draining might be carried on whenever required; it does not however bring profit sufficiently immediate and evident to induce the natives to adopt it.

Some Cape Clover Seed was received from Mr. Popham but none of it vegetated, and I very much doubt from the specimens of clover already in Bangalore whether it would ever be worth cultivating in comparison with Lucern which thrives here so admirably.

The Tea plants received from Mr. Sullivan are healthy, but do not grow rapidly. I intend shortly to graft some of them upon the *Gordinia Obtusa*, of which there are two plants in the garden, in hopes of rendering it more hardy. The progress hitherto is sufficiently encouraging to induce further experiments which I have no doubt would ultimately prove successful both on the Neilgherries and in Bangalore.

I saw one plant on the Neilgherries at Katie in full flower and in excellent health, thriving as well as a plant could thrive. I believe there are not alive, six plants of the set with which this one came, and which originally consisted of many hundreds: this was however the effect of bad management.

In the Horticultural Department great care has been given to obtain good seed from the finer kinds of vegetables, such as, knolkole, cabbage, radish, celery &c. The endeavours have been successful with the radish only. The rhubarb has grown rapidly and been increased. The seeds of the Gigantic cabbage which were sent to us from several quarters all failed; every endeavour to make them vegetate was useless.

A great improvement has been effected in the pea, already very good here, by introducing the Dwarf Prussian and Knight's Green Marrow both of which are very hardy and will I hope, soon generally cultivated.

Some potatoe seed raised on the Neilgherries and presented to the Society by the Honorable Mr. Sullivan failed. The Scotch red apple, and New South Wales potatoes have both been propagated.

In the fruit department the principal care has been to teach the Native gardeners how to prune. No new fruits or varieties have been introduced, but the good ones have been increased. That the apple is deserving of cultivation in a lucrative point of view, is evident from the fact mentioned at a former meeting of Sergeant Masters having realized in nine months by apples upwards of 700 rupees from a garden that is not a beegah in extent.

The pineapple has been also improved and several excellent kinds of oranges are now cultivated in the neighbourhood. A catalogue of the different varieties of fruit descriptive of their relative properties and value has been commenced, but will still require some time to complete satisfactorily. Some seed of the Nagpore guava was received a long time ago from Captain Pooley; the seed remained in the ground for several months without vegetation, but did so at last and the plants are now growing rapidly. I tried during the last year some curious experiments with mercury, many of the apple trees were infested with a black disease which destroyed the trees rapidly. I bored holes through the wood as far as the pith and filled them with mercury—in no single instance did it fail to stop the disease.

Grafting trees of one genus upon those of another genus has been done to some extent by way of experiment, not that I think much good is likely to be effected by it. I have grafted the apple upon the locquart, the orange upon the pomegranate, the rose apple upon the Avocado, Pear, and the Jamlosa *Malacchisis* upon the locquart.

The strawberry is well deserving of care in Bangalore and repays the trouble bestowed upon it. I cannot, however, recommend Dr. Ingledew's system after having given it a fair trial. Exposure is undoubtedly beneficial to it as may be seen by the bed of strawberries in the garden which have now been in bearing since January.

The Neilgherry gooseberry is thriving but has not produced any fruit. A great number of trees and plants have been introduced, during the last year upwards of 200 species. A catalogue of all the plants in the garden has been completed and will be printed. Amongst other plants it may be worth while to mention the *Rhododendrum Arboreum*, *Daphnae Erisaephala* and the *Berberis Leschenanthi*; this last plant is, I believe, never found on the Neilgherries at a lower elevation than 6,200 feet, and yet it is thriving admirably in the garden. The tree Fern, a species of *Lyathea*, is also growing well, and the two fir trees have advanced as rapidly as they would have done in England. *These all*

country it may be native, would succeed. It is infinitely better adapted for experiments than the Neilgherries ; but when I speak of Bangalore, I do not confine it to Bangalore itself actually, as I think any place at a similar elevation in Mysore, and there are many, equally favourable. I have derived great benefit from the use of the hot bed, as I scarcely ever fail in raising seeds from England which in former times, seldom if ever vegetated in greater proportion than one in twenty. Experiments have been made in boiling seeds and have proved advantageous in causing them to vegetate much quicker than when left to themselves ; some I have boiled fifteen minutes. I should generally recommend that the water should be boiled, then taken off the fire and the seeds put in and allowed to remain for 10 minutes.

Experiments have also been made by a gentleman in Bangalore of putting bulbs into boiling water, which has caused them to grow much more rapidly than those treated otherwise. I have succeeded in growing many of the beautiful Orchideous plants, natives of moist forests, which have in general proved very difficult of cultivation, by a simple process of suspending a chatty above them, with a small hole pierced in it through which the water continually runs, and thus to a certain extent imitates their native situations. They are well deserving of cultivation. A considerable improvement has been effected in the flower pots, which after some trouble are now regularly made after the English shape and sizes, and are kept in the gardens, sized and marked to agree with books on English gardening.

The gardeners have been instructed in potting and repotting plants, the advantage of potsheds, the use of a hot bed and raising seedlings in it, the artificial impregnation of flowers in order to obtain new varieties, laying, and several new modes of grafting herbaceous and other plants. A number of boys frequently attend the gardens to learn their business, and who render some assistance without receiving pay. *I had at one time a regular school in the garden, for teaching the boys in classes, but unfortunately some person told them I was endeavouring to make them Christians and my intentions were defeated.* I have adopted a plan of giving a number of tickets of admission to the garden to the Secretary to the Commissioner, to the Superintendent of the Bangalore division and some other influential gentlemen for the purpose of being given to any native who might wish to go into the garden for the purpose of seeing, gaining information or receiving seeds, which have been freely distributed whenever requested. The sums received during the last year evince great liberality towards the Society ; the available balance of upwards of 900 rupees will, I hope, prove that the expenses have been kept within proper bounds. A large garden like the one belonging to the society, which it is endeavoured to cultivate in the best manner possible, is a cause of very serious expense, but the regulations of the Committee that the seed and surplus produce of the garden should be sold, making a deduction of one-half in favour of subscribers, has been a material assistance to the funds, and moreover prevents all complaints about partiality in the distribution. A book is kept in the garden in which any member wishing for a particular plant, seeds, varieties of fruits, &c., writes his name and the article wished for, and is supplied with it as soon as it can be spared. All endeavours have been in vain to induce the head natives to take any lead in the Society ; an infinity of good might be effected by them as being the proper persons to whom any of the natives could apply for seeds, plants, instructions &c. From Ramaswamy Moodelliar, Janapar, Curta Curta, the Society received the munificent donation of 200 rupees, with a promise to assist the society in every way in his power ; but from no other native have we received even an offer of assistance, although a great number of the respectable class visit the gardens.

The appointment of some scientific and practical person as superintendent of agriculture in Mysore would be attended with excellent results. There can be no doubt that the country is capable of producing the very best descriptions of cotton, tobacco, sugar, spice, and many other articles that invariably meet with a ready market, when of good quality. *It must, however, at least be begun by the Government. A small portion of ground, in each talook might be placed under the superintendent to be cultivated on the part of government,* which I have no doubt would much more than cover its expence ; as, for instance, country cotton seldom produces 30 lbs. an acre of clean cotton, whereas the Bourbon has been known to produce 270 lbs. and upwards ; here is a clear gain of 900 per cent., in addition to the vast difference in the prices. For 1837, the best Indian cotton only brought 8d, a lb. and Sea Island 2s. 6d. ; it is scarcely possible to fancy a greater difference of price in any article in the same market. The Mysoreans are good farmers and after starting a few difficulties are willing enough, particularly when recommended or ordered by Government to adopt a plan that is evidently profitable. It is, however, perfectly useless to attempt to argue with them in order to prove the likely success of any new undertaking. Proving the advantages of American cottons has been done in Bangalore by the Society, and ought to be sufficient for the natives in the neighbourhood, and has been I believe, an inducement to many to cultivate it ; and I am given to understand that many intend to adopt the

variety. the advantages of the garden are, however, comparatively confined, and although by a series of experiments in ameliorating fruits, grain, &c., it will be of universal advantage, yet these experiments ought to be carried on under the superintendence of one person who would require to be permanently appointed to the charge of the garden, to whom might be entrusted the care of the agriculture of Mysore. There is now no Botanical Garden in this presidency, I feel convinced that the government could not fix upon a more eligible spot than this is.

The Horticultural Society of India, of Western India, and Madras have always afforded us every assistance in their power.

The Society of Western India, were kind enough to send us some copies of Dr. Mutti's pamphlet on silk in English and Mahratta. The latter was sent to the Chief Commissioner who intends having it translated into Canarese and circulated all over Mysore.

The natives would, I believe, take readily to the cultivation of the silk ; the only steps the Society have as yet taken, have been to propagate all the different kinds of mulberry of which there are four distinct varieties in the garden.

The Society is indebted to the Editors of Newspapers at Madras for the kindness with which they have invariably inserted anything connected with the Society when requested to do so.

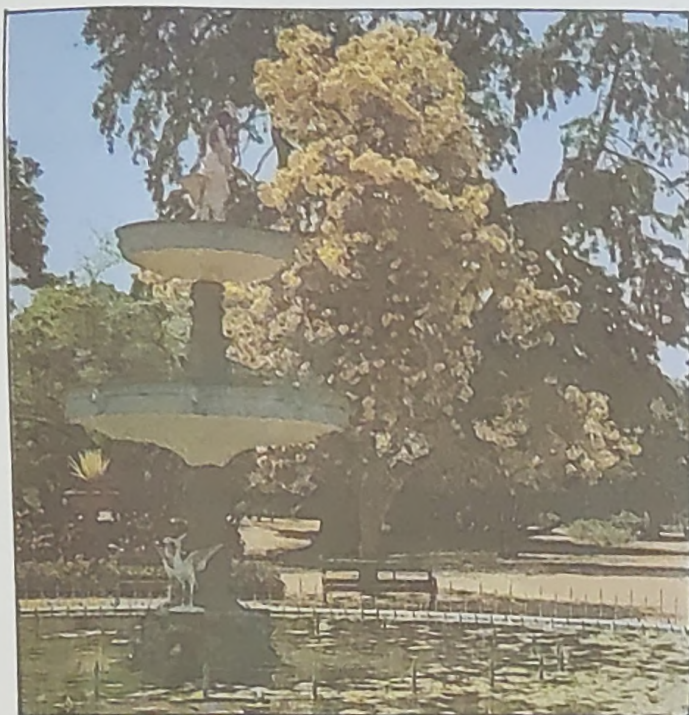
WILLIAM MUNRO,
Secretary



Rubber Exhibition held in Ceylon in 1906.

Indian Delegates , 6th person in middle row, J. Cameron, Curator, Botanic Gardens, Bangalore, India.

4th person in back row G.H. Krumbiegal, Curator, Botanic Gardens - Baroda, India.



Tabebuia argentea



Peltophorum sp.



Ornamental parapet wall with gate arch covered by a creeper in front of Lalbagh Library



